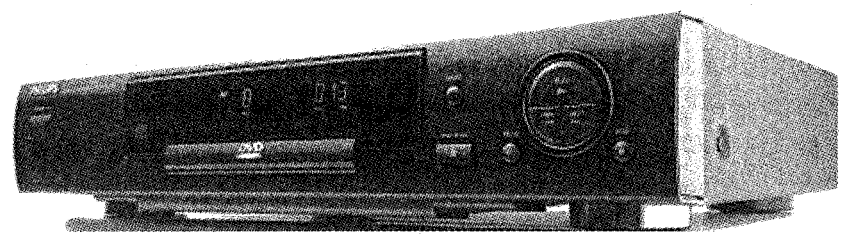
# DVD-Video Player

# DVD 756

## DVD 756/002

Service
Service
**Service**



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# ServiceManual

CLASS 1
LASER PRODUCT

DVD VIDEO

COMPACT disc DIGITAL VIDEO

COMPACT disc DIGITAL AUDIO

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PHILIPS

# 1. Technical specifications

## Specification

English

### PLAYBACK SYSTEM
DVD-Video
Video CD
CD (CD-R and CD-RW)

### OPTICAL READOUT SYSTEM

| | |
|---|---|
| Lasertype | Semiconductor AlGaAs |
| Numerical Aperture | 0.60 (DVD) |
| | 0.45 (VCD/CD) |
| Wavelength | 650 nm (DVD) |
| | 780 nm (VCD/CD) |

### DVD DISC FORMAT

| | | |
|---|---|---|
| Medium | Optical Disc | |
| Diameter | 12cm (8cm) | |
| Playing time | One layer | 2.15 h* |
| (12cm) | Dual layer | 4 h* |
| | Two side | 4.30 h* |
| | Single layer | |
| | Two side | 8 h* |
| | Dual layer | |

### VIDEO FORMAT

| | |
|---|---|
| DA Converter | 10 bits |
| Signal handling | Components |
| Digital Compression | MPEG2 for DVD, |
| | MPEG1 for VCD |

| TV STANDARD | (PAL/50Hz) | (NTSC/60Hz) |
|---|---|---|
| Number of lines | 625 | 525 |
| Playback | Multistandard | (PAL/NTSC) |

### DVD

| | | |
|---|---|---|
| Horiz. Resolution | 720 pixels** | 720 pixels** |
| Vertical Resolution | 576 lines | 480 lines |

### VCD

| | | |
|---|---|---|
| Horiz. Resolution | 352 pixels | 352 pixels |
| Vertical Resolution | 288 lines | 240 lines |

### VIDEO PERFORMANCE

| | |
|---|---|
| Video output | 1 Vpp into 75 ohm |
| S-Video output | Y: 1 Vpp into 75 ohm |
| | C: 0.3 Vpp into 75 ohm |
| RGB output | 0.7 Vpp into 75 ohm |
| Black Level Shift | On/Off |
| Video Shift | Left/Right |

### AUDIO FORMAT

| | | |
|---|---|---|
| Digital | MPEG | Compressed Digital |
| | DTS/AC-3 | |
| | PCM | 16, 20, 24 bits |
| | | fs, 44.1, 48, 96 kHz |

Analog Sound Stereo
Dolby Pro Logic downmix from multi-channel sound
3D Sound for virtual 5.1 channel sound on 2 speakers (AC-3)

### AUDIO PERFORMANCE

| | | |
|---|---|---|
| DA Converter | 24 bits | |
| DVD | fs 96 kHz | 4 Hz - 44 kHz |
| | fs 48 kHz | 4 Hz - 22 kHz |
| Video CD | fs 44.1 kHz | 4 Hz - 22 kHz |
| CD | fs 44.1 kHz | 4 Hz - 20 kHz |
| Signal-Noise (1kHz) | | 103 dB |
| Dynamic Range (1kHz) | | 98 dB |
| Crosstalk (1kHz) | | 115 dB |
| Distortion and Noise (1kHz) | | 95 dB |
| Headphone | 30mW at 32 Ohm load, | |
| | headphone imp. 8-2k Ohm | |

### CONNECTIONS

| | |
|---|---|
| SCART | 2 SCART |
| S-Video Output | Mini DIN, 4 pins |
| Video Output | Cinch (yellow) |
| Audio L+R output | Cinch (white/red) |
| Digital Output | 1 coaxial, 1 optical |
| | IEC958 for CDDA / LPCM |
| | IEC1937 for MPEG1, MPEG2 and AC-3 |
| | DTS |
| Cinemalink | on SCART |
| Headphone | 6.3 mm Jack |

### CABINET

| | |
|---|---|
| Dimensions (w x h x d) | 435 x 92 x 320mm |
| Weight | Approx. 4 Kg |

### GENERAL FUNCTIONALITY
Stop / Play / Pause
Fast Forward / Backward
Time search
Step Forward / Backward
Title / Chapter / Track Select
Next / Previous
Repeat (Chapter / Title / All) or (Track / All)
A-B Repeat
Shuffle
Enhanced ease of use graphical interface
Perfect Still with digital multi-tap filter
Zoom (xl.33, x2. x4) with picture enhancement
Personal Color settings (Smart Picture)
Cinemalink interconnection for plug&play
3D Sound
Virtual Jog Shuttle
Audio and video bit rate indicator
Beeper

### DVD FUNCTIONALITY
Multi-angle Selection
Audio Selection (1 out of max. 8 languages)
Subtitles Selection (1 out of max. 32 languages)
Aspect Ratio conversion (16:9, 4:3 Letterbox, 4:3 Pan Scan)
Parental Control and Disk Lock
Disc Menu support (Title Menu and Root Menu)
Resume (5 discs) after stop / standby
Screen Saver (Dim 75% after 15 min.)
Programming Titles/chapters with Favorite Selection

### VIDEO CD FUNCTIONALITY
Playback Control for VCD 2.0 discs
Disc Lock
Resume (5 discs) after stop / standby
Screen Saver (Dim 75% after 15 min.)
Programming Tracks with Favorite Selection

### AUDIO CD FUNCTIONALITY
Time Display (Total / Track / Remaining Track Time)
Full audio functionality with remote control
Programming with Favorite Track Selection

***Specifications subject to change without prior notice***

* *typical playing time for movie with 2 spoken languages and 3 subtitle languages.*
** *equivalent to 500 lines on your TV*

# 2. Warnings and Laser safety instructions

(GB) **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

**ESD**

(NL) **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise a leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller a ce que les composants ainsi que les outils que l'on utilise soient également a ce potentiel.

(D) **WARNUNG**

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen sie dafür, das Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevita potrebbe essere fortemente ridatta in caso di non osservazione della piu grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecifieerde worden toegepast.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.
Der Originalzustand des Gerats darf nicht verandert werden.
Fur Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago idetici a quelli specificati.

(F)

Les normes de sécurité exigent que l'appareil soit remis a l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

**SHOCK, FIRE HAZARD SERVICE TEST:**

**CAUTION:** After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom,
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.
Ref.UL Standard NO.1492.

**NOTE ON SAFETY:**

Symbol ⚠ : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol ⚠
Any other component substitution(other than original type), may increase risk or fire or electrical shock hazard.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne."

## LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

## LASER DEVICE UNIT

| | |
|---|---|
| Type: | SemiconductorlaserGaAlAs |
| Wave length: | 650 nm (DVD) |
| | 780 nm (VCD/CD) |
| Output Power: | 7 mW (DVD) |
| | 10 mW (VCD/CD) |
| Beam divergence: | 60 degree |

**USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

**AVOID DIRECT EXPOSURE TO BEAM**

**WARNING**

The use of optical instruments with this product will increase eye hazard.
Repair handling should take place as much as possible with a disc loaded inside the player

**WARNING LOCATION: INSIDE ON LASER COVERSHIELD**

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETSEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

# Warning for powersupply on position 1005

**The primary side of the powersupply including the heatsink carries live mains voltage when the player is connected to the mains even when the player is swiched off !**
This primary area is not shielded so it is possible to touch copper tracks and/or components when servicing the player. Service personnel have to take precautions to prevent touching this area or components in this area .
The primary side of the powersupply has been indicated with a lightning stroke and a stripe-marked printed on the printed wiring board

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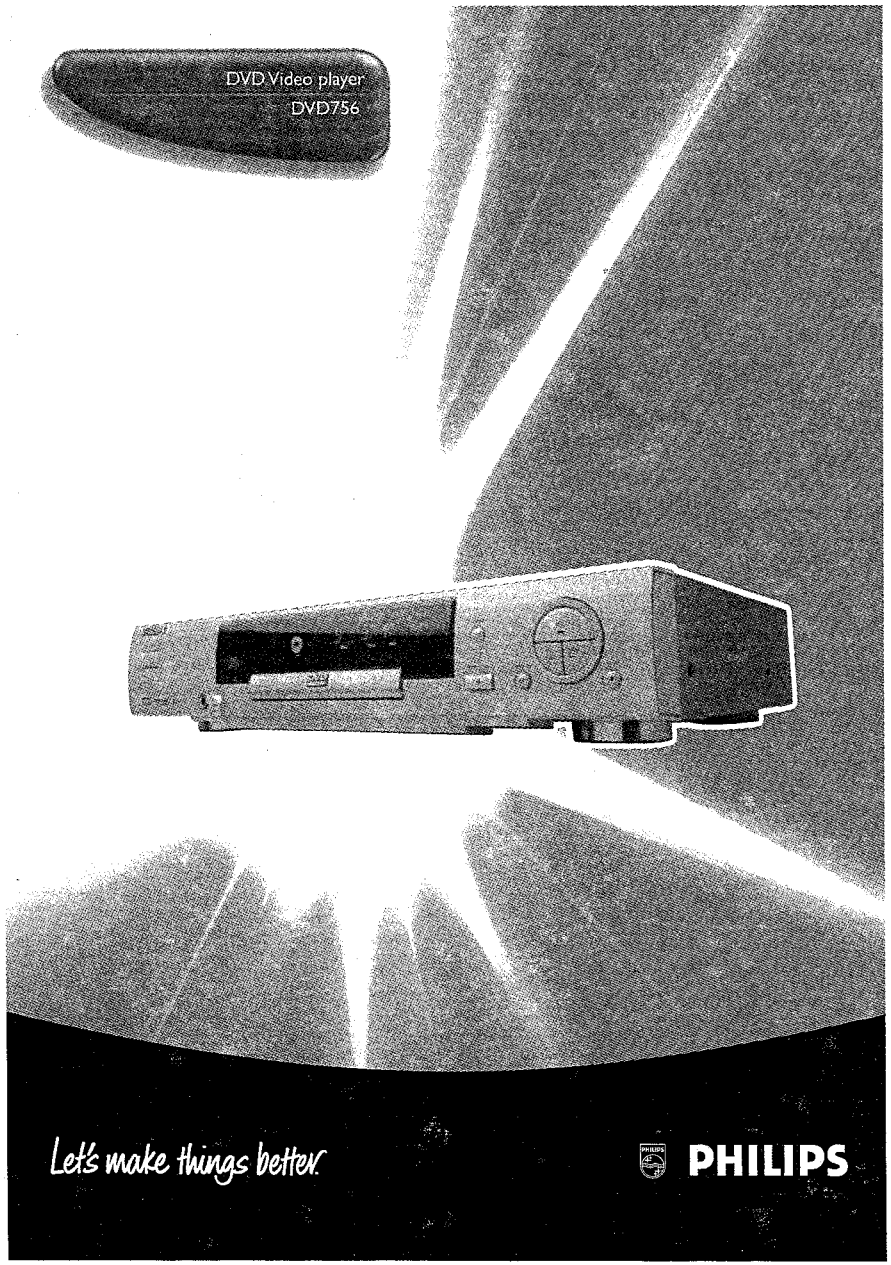
## 2.1 Notes

### 2.1.1 DVD-Module

For repair of the DVD-module ASD1, the service manual 3122 785 10840 has to be used.

### 2.1.2 Compair

For assistance with the repair process of the monoboard an electronic Fault finding guidance has been developed , this program is called COMPAIR.
This COMPAIR program is available on CDROM.
The Version of the CDROM for repair of the monoboard is V1.3 and can be ordered with codenumber : 4822 727 21637.
This is an update CDROM , so when the COMPAIR CDROM is used for the first time , one has to install the COMPAIR ENGINE CDROM V1.2 first.
The V1.2 CDROM can be ordered with codenumber 4822 727 634 and has to registered after installation , the procedure for registration is explained in the help file of the program and in the booklet from the CDROM.
The cable to connect the monoboard with a PC can be ordered with codenumber 3122 785 90017.
All the hardware and software requirements of the systems necessary for working with COMPAIR is described on the CDROM.




## Important Note

DK

Advarsel:

Laserrudstråling ved åbning når sikkerhesafbrydere er ude af funktion. Undgå u tsættelse for stråling.

Bemærk:

Netafbryderen POWER er sekundært indkoblet og afbryder ikke strømmen fra nette. Den indbyggede netdel er derfor tilsluttet til lysnettet så længe netstikket sidder i stikkontakten.

N

Observer:

Nettbryteren POWER er sekundert innkoplet. Den innebygdenetdelen er derfor ikke frakoplet nettet så lenge apparatet er tilsluttet nettkontakten.

S

Klass 1 laserapparat

Varning!

Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kann användaren utsättas för laserstrålning, som översjruder gränsen för läserklass 1.

Observera!

Strömbrytaren POWER är sekundärt kopplad och inte bryter strömmen fråan nätet Den inbyggda nätdelen är därför ansluten till elnätet så länge stickproppen sitter i v ägguttaget.

SF

Luokan 1 laserlaite + Klass 1 laserapparat

Varoitus!

Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle lasersäteilille.

Huom.

Toiminnanvalitsin POWER on kytketty toisiopuolelle, eikä se kytke laitetta irti sähköverkosta. Sisäänrakennettu verkko-osa on kytkettynä sähköverkkoon aina silloin, kun pistoke on pistorasiassa.

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## Important Note for Users in the UK

**Mains plug**

This apparatus is fitted with an approved 13 Amp plug. To change a fuse in this type of plug proceed as follows:

1 Remove fuse cover and fuse.
2 Fix new fuse which should be a BS1362 5 Amp, A.S.T.A. or BSI approved type.
3 Refit the fuse cover.

If the fitted plug is not suitable for your socket outlets, it should be cut off and an appropriate plug fitted in its place.
If the mains plug contains a fuse, this should have a value of 5 Amp. If a plug without a fuse is used, the fuse at the distribution board should not be greater than 5 Amp.

*Note: The severed plug must be disposed of to avoid a possible shock hazard should it be inserted into a 13 Amp socket elsewhere.*

**How to connect a plug**

The wires in the mains lead are coloured with the following code: blue = neutral (N), brown = live (L).

As these colours may not correspond with the colour markings identifying the terminals in your plug, proceed as follows:

- Connect the blue wire to the terminal marked N or coloured black.
- Connect the brown wire to the terminal marked L or coloured red.
- Do not connect either wire to the earth terminal in the plug, marked E (or e) or coloured green (or green and yellow).

Before replacing the plug cover, make certain that the cord grip is clamped over the sheath of the lead - not simply over the two wires.

**Copyright in the U.K.**
**Recording and playback of material may require consent. See Copyright Act 1956 and The Performer's Protection Acts 1958 to 1972.**

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English
Français
Español
Deutsch
Nederlands
Italiano
Svenska
Dansk
Suomi
Português
Ελληνικά



# General Information

The region code for this set is 2.

Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes and discs can have an optional region code. If you load a disc of a different region code to your player, you will see the region code notice on the screen. The disc will not play, and should be unloaded.

**NOTE:**
**PICTURES SHOWN MAYBE DIFFERENT BETWEEN COUNTRIES.**

**CAUTION**
**WARNING LOCATION: INSIDE ON LASER COVERSHIELD OR THE BACKPLATE OF SET**

**NEVER MAKE OR CHANGE CONNECTIONS WITH THE POWER SWITCHED ON.**

CE The DVD-VIDEO player is in conformity with the EMC directive and low-voltage directive.

TruSurround and the SRS symbol are trademarks of SRS Labs., Inc. TruSurround technology is manufactured under license from SRS Labs., Inc.

**TruSurround™ by SRS ((●))®**

For Customer Use:

Read carefully the information located at the bottom of your DVD-VIDEO player and enter below the Serial No. Retain this information for future reference.

Model No. DVD-VIDEO
Serial No. _____

## Laser safety

This unit employs a laser. Due to possible eye injury, only a qualified service person should remove the cover or attempt to service this device.

**USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

| **LASER** | |
|---|---|
| Type | Semiconductor laser GaAlAs |
| Wave length | 650 nm (DVD)<br>780 nm (VCD/CD) |
| Output Power | 7 mW (DVD)<br>10 mW (VCD/CD) |
| Beam divergence | 60 degree |

CAUTION
VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL
SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
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# Introduction

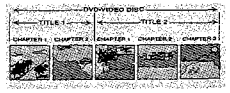
English

## Philips DVD-Video Introduction

Your Philips DVD-Video player will play digital video discs conforming to the universal DVD-Video standard. With it, you will be able to enjoy full-length movies with true cinema picture quality, as well as stereo or multi-channel sound (depending on the disc and your playback setup). The unique features of DVD-Video, such as selection of sound track, subtitle languages and different camera angles (again depending on the disc), are all included. What's more, Philips Child Lock lets you decide which discs your children will be able to see.
In addition to DVD-Video discs, you will be able to play all Video CDs and Audio CDs (including finalized CD Recordable and CD Rewritable).
You will find the On-Screen Display, player display, and remote control make the player easy to use. This manual provides all the information you will need, so read on!

### DVD-Video

You will recognize DVD-Video discs by the logo shown.
Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more Titles.




### Video CD

You will recognize Video CDs by the logo shown.

### Audio CD

Audio CDs contain music tracks only.
You will recognize Audio CDs by their logo which is shown.

## Unpacking

First check and identify the contents of your DVD-Video player package.
You should have the following items.
- DVD-Video player
- Remote Control with batteries
- AC power cord
- Audio cable
- Video cable
- SCART cable
- Instructions for use

If any item is damaged or missing, contact your retailer or Philips.
Keep the packaging materials; you may need them to transport your player in the future.

## Safety Information

- Do not expose the system to excessive moisture, rain, sand or heat sources.
- Place the player on a firm, flat surface.
- Keep the player away from domestic heating equipment and direct sunlight.
- In a cabinet, allow about 2.5 cm (1 inch) of free space all around the player for adequate ventilation.
- If the DVD-Video player cannot read CDs/DVDs correctly, use a commonly available cleaning CD/DVD to clean the lens before taking the DVD-Video player to be repaired. Other cleaning methods may destroy the lens. Always keep the tray closed to avoid dust on the lens.
- The lens may cloud over when the DVD-Video player is suddenly moved from cold to warm surroundings. Playing a CD/DVD is not possible then. Leave the DVD-Video player in a warm environment until the moisture evaporates.

## Cleaning discs

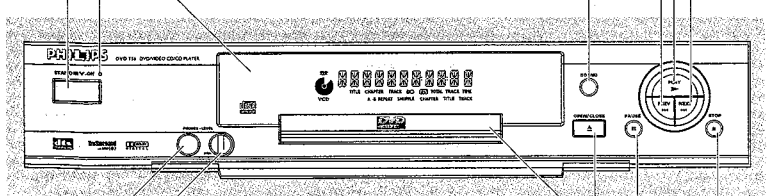
Some problems occur because the disc inside the player is dirty. To avoid these problems clean your discs regularly, in the following way:

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.

**Caution: Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for analog discs.**

# Functional Overview

## Front panel



STANDBY-ON – switches the player to Standby mode or ON

Standby indicator– lights red when the player is in Standby mode

Display – shows the current status of the player

⏭ – NEXT title/chapter/track

▶ PLAY – starts video/audio play

⏮ – PREVious title/chapter/track

SOUND
– selects Stereo, Dolby Surround or 3D-Sound

Disc Tray

▲ OPEN/CLOSE – opens/closes the disc tray

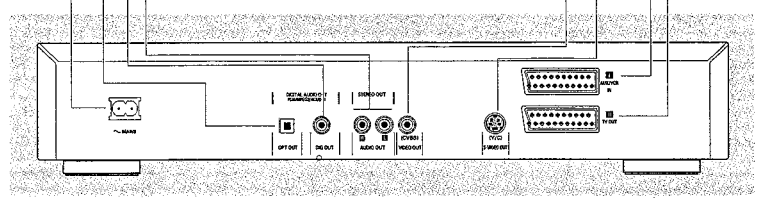
II PAUSE – interrupts video/audio play or advances to the next picture frame

■ STOP – stops video/audio play

LEVEL – headphone volume control

PHONES – for connecting headphones

## Rear panel



MAINS (AC) power jack – connect to the power source

Digital audio out jack (optical)
– connect to digital (optical) equipment

Digital audio out jack (coaxial)
– connect to digital (coaxial) equipment

Audio / L/R (Left/Right)
– connect to an amplifier, receiver or stereo system

TV OUT (TV)
– connect to a TV with SCART

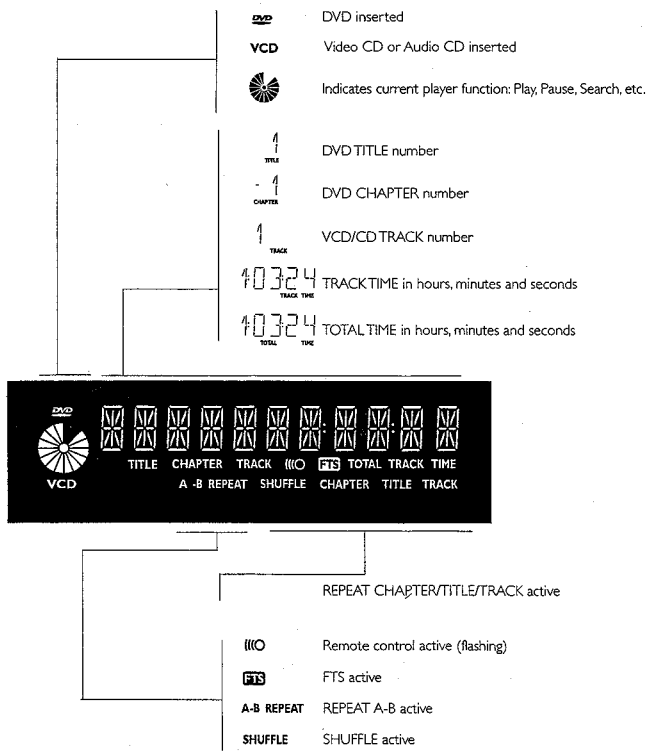
AUX/VCR (SCART)
– connect to a VCR

S-Video Out (S-Video)
– connect to a TV with S-Video (Y/C) inputs

Video Out (CVBS)
– connect to a TV with CVBS video inputs

**Caution: Do not touch the inner pins of the jacks on the rear panel connectors. Electrostatic discharge may cause permanent damage to the unit.**

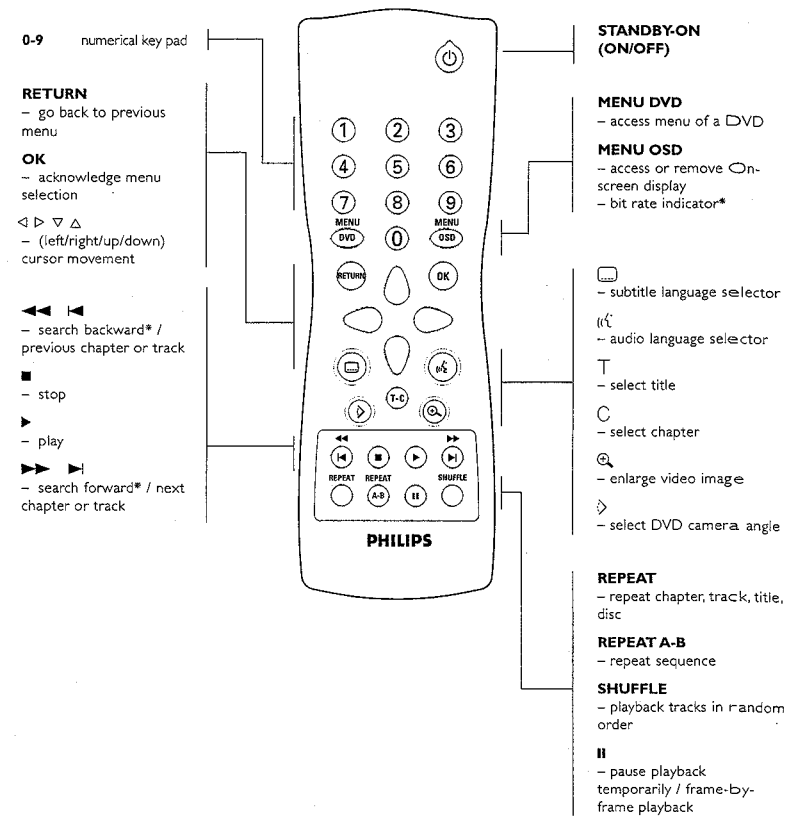
## Display








## Remote control

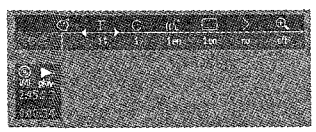



* Press key for about 2 seconds

# On Screen Display Information

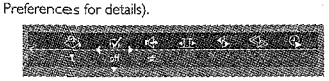
## Menu bar/Status window

- Personal Preferences
- Title/Track
- Chapter/Index
- Audio language
- Subtitle language
- Angle
- Zoom
- Color Settings (Smart Picture)
- Video Program
- Sound
- Picture by Picture
- Slow motion
- Fast motion
- Time search



## Status window icons

The status window displays the current status of the player and appears with the first part of the menu bar. (You must activate this in the Features Menu - see Personal Preferences for details).



**General**

Disc type

Tray status

## Default screen

The default screen is displayed when the player is in STOP mode.
It may contain a 'Status Window' and a 'Temporary Feedback Field'. This gives information concerning prohibited actions, playback modes, available angles, etc.

## Temporary Feedback Field icons

Repeat All

Repeat Title

Repeat Track

Repeat Chapter

Shuffle

Shuffle Repeat

Repeat A to end

Repeat A-B

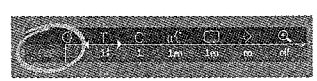
Angle

Child Lock On

Child Safe

Resume

Action prohibited





English

# Preparation

## General notes

- Depending on your TV and other equipment you wish to connect, there are various ways you could connect the player. Possible connections are shown in the following drawings.
- Please refer to the manuals of your TV, VCR, Stereo System or other devices as necessary to make the best connections.
- Do not connect your DVD-player via your VCR. The video quality could be distorted by the copy protection system.
- For better sound reproduction, connect the player's audio out jacks to the audio in jacks of your amplifier, receiver, stereo or A/V equipment. See 'Connecting to optional equipment'.

**Caution: Do not connect the player's audio out jack to the phono in jack of your audio system.**

## Connecting to a TV

1 Connect the SCART to the corresponding connector on the TV using the SCART cable supplied ***(A)***.

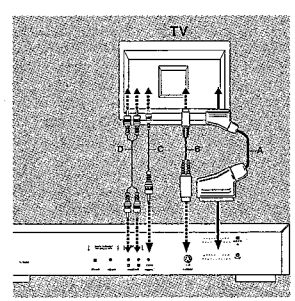
If your TV is not equipped with a SCART you can select one of the following alterative connections:

### S-Video (Y/C) connection

1 Connect the S-Video jack on the DVD-player to the S-Video in jack on the TV using an optional S-Video cable ***(B)***.
2 Connect the audio Left and Right out jacks to the audio left/right in jacks on the TV ***(D)***.

### Video CVBS connection

1 Connect the Video out (CVBS) jack to the video in jack on the TV using the video cable supplied ***(C)***.
2 Connect the audio Left and Right out jacks to the audio left/right in jacks on the TV ***(D)***.




## Connecting to optional equipment

### Connecting to an amplifier equipped with two channel analog stereo

1 Connect the audio Left and Right out jacks of the DVD player to the audio left and right in jack on your amplifier, receiver or stereo system, using the optional audio cable ***(E)***.

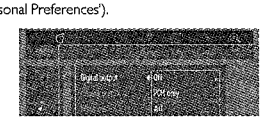
### Connecting to an amplifier equipped with two channel digital stereo (PCM)

1 Connect the player's digital audio out jack (optical ***G*** or coaxial ***F***) to the corresponding in jack on your amplifier. Use an optional digital (optical ***G*** or coaxial ***F***) audio cable.
2 You will need to activate the player's digital output (see 'Personal Preferences').

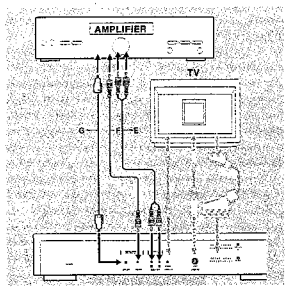
### Connecting to an A/V receiver equipped with a multi-channel decoder (Dolby Digital™(AC-3), MPEG 2 and DTS)

**Digital Multi-channel sound**
Digital multi-channel connection provides the best sound quality. For this you need a multi-channel A/V receiver that supports one or more of the audio formats supported by your DVD player (MPEG 2, Dolby Digital™(AC-3) and DTS). Check the receiver manual and the logos on the front of the receiver.

1 Connect the DVD player's digital audio output (optical ***G*** or coaxial ***F***) to the corresponding input on the receiver using an optional digital (optical ***G*** or coaxial ***F***) audio cable.
2 You will need to activate the player's digital output (see 'Personal Preferences').



*Note:*
*– If the audio format of the digital output does not match the capabilities of your receiver, the receiver will produce a strong, distorted sound or no sound at all.*
*– The selected audio format of the DVD is displayed in the Status Window when the Menu OSD is activated or Audio button is activated.*
*– Six Channel Digital Surround Sound via digital connection can only be obtained if your receiver is equipped with a Digital Multi-channel decoder.*
*– To see the selected audio format of the current DVD in the Status Window, press the MENU OSD or the Audio Language selector button.*




### Cinemalink (on SCART)

This DVD player is equipped with cinemalink feature (from Philips) which allows a more complete control of your home audio/video (AV) equipment.

Cinemalink interconnection plug & play will enable the AV system to recognise the users intention and automatically switch the necessary controls or input source accordingly. This will reduce the necessity of having multiple control inputs for all AV equipments (eg. TV and Amplifier).

### Connecting to an amplifier equipped with Dolby Surround™

**Dolby Surround sound**

1 Connect the player to the TV, then connect the player's audio Left and Right out jacks to the corresponding in jacks on the Dolby Surround™ Audio/Video receiver, using the audio/video cable supplied ***(D)***.

**If your amplifier is equipped with a Dolby Digital™ decoder,**

- Connect the player as described in 'Connecting to an A/V receiver with multi-channel decoder'.

**If your TV is equipped with a Dolby Surround™ decoder,**

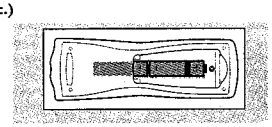
- Connect the player to the TV as described in 'Connecting to a TV'.

## Remote control battery installation

### Loading the batteries

1 Open the battery compartment cover.
2 Insert batteries as indicated inside the battery compartment.
3 Close the cover.

**Caution: Do not mix old and new batteries. Never mix different types of batteries (standard, alkaline, etc.)**



## NTSC/PAL Settings

You can switch the NTSC/PAL setting of the DVD player to match the video signal of your TV. This setting only affects the television's on-screen display that shows the stop and setup modes. You may select either NTSC or PAL. To change the DVD player setting to PAL or NTSC, follow the steps below.

1 Unplug the DVD player from the mains.
2 Press and hold ■ and ▶▶| on the front of the DVD player. While holding ■ and ▶▶|, plug in the mains.
3 After PAL or NTSC appears on the display panel of the DVD player, release ■ and ▶▶| at the same time. The PAL or NTSC that appears on the display panel indicates the current setting.
4 To change the setting, press ▶▶| within three seconds. The new setting (PAL or NTSC) will appear on the display panel.

## General explanation

### About this manual

This manual gives the basic instructions for operating this DVD player. Some DVDs require specific operation or allow only limited operation during playback. In these cases, the player may not respond to all operating commands. When this occurs, please refer to the instructions contained with the DVD. When the symbol ✕ appears on the TV screen, the operation is not permitted by the player or the disc.

### Remote control operation

- Unless otherwise stated, all operations can be carried out with the remote control. Always point the remote control directly at the player, making sure there are no obstructions in the path of the infrared beam.
  When there are corresponding keys on the front panel of the player, they can also be used.





### Menu bar operation

- A number of operations can be carried out via the menu bar on the screen. The menu bar can be accessed by pressing any of the following keys on the remote control: MENU OSD, T-C, Angle, Audio Language, Subtitle Language and Zoom.
- Pressing MENU OSD while the menu bar is displayed will clear the menu bar from the screen.
- When selecting an item in the menu bar, the selected item will be highlighted and the appropriate cursor keys to operate this item will be displayed below the icon.
- < or > indicates that more items are available at the left/ right of the menu bar. Press ◁ or ▷ to select these items.

## Turning On the power

1 Switch on the TV and select the video input channel for your DVD-Video player.
2 Press STANDBY-ON button.

## Initial Setup (Virgin Mode)

### General

In 'Initial Setup' you may have to set your preferences for some of the player's features. *(not applicable for all models)*

### Operation

After switching on the player for the very first time, the 'Initial Setup Screen' will appear.
The menu for the first item to be set is displayed and the first option is highlighted.

- Use the ▽ △ keys to go through the options in the menu. The icon of the selected option will be highlighted.
- Use OK to confirm your selection and to go to the next menu.

*Note:*
*– Preferences have to be set in the order in which the item menus will appear on the screen.*
*– The 'Initial Setup' screen will only disappear after the settings for the last item have been confirmed.*
*– If any keys other than ▽ △ or OK are pressed, ✕ will appear on the screen.*
*– If the player is switched off while setting personal preferences, all preferences have to be set again after switching the player on again.*



**The following items may have to be set in Initial Setup:**

### Menu language

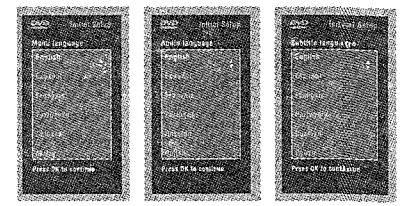
You can choose from different languages. The On Screen Menus will be displayed in the language you choose.

### Audio language

You can choose from different languages. The sound will be in the language you choose if it is available on the disc in play. If the language you select is not available, speech will revert to the first spoken language on the disc.

### Subtitle language

You can choose from different languages. The subtitles will be in the language you choose if it is available on the disc in play. If the language you select is not available, subtitles will revert to the first subtitle language on the disc.



### TV Shape

If you have a wide screen (16:9) TV, select 16:9.
If you have a regular (4:3) TV, select 4:3.
If you have a 4:3 TV, you can also select between: Letterbox for a 'wide-screen' picture with black bars top and bottom, or Pan Scan, for a full-height picture with the sides trimmed. If a disc has Pan Scan, the picture then moves (scans) horizontally to keep the main action on the screen.

### Country

Select your country. This is used as input for the 'Parental Control' feature (see 'Access Control').

*Note:*
*– All these items may have to be set during 'Initial Setup'. After that, they can always be changed in the Personal Preferences Menu.*

# Personal Preferences

You can set your personal preferences for some of the player features.

## General operation:

- Press MENU OSD on the remote control.
- Select in the menu bar.
  ➜ The Personal Preferences menu appears.
- Use the ◁ ▷ ▽ △ keys to toggle through the menus, submenus and submenu options.
  ➜ When a menu item is selected, the cursor keys (on the remote control) to operate the item are displayed next to the item.
- Press OK to confirm and return to the main menu.

The following items can be adapted:

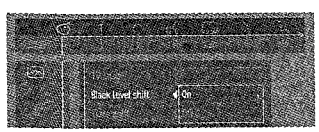
### Picture

**– TV Shape**

See 'Initial Setup'

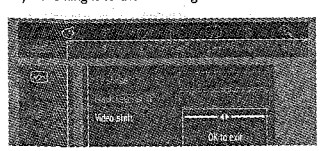
**– Black level shift (NTSC only)**

Select ON for adapting the color dynamics to obtain richer contrasts.



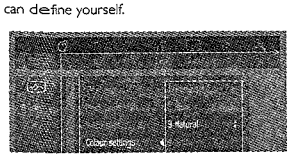

**– Video shift**

The factory centers the video on your screen. Use this setting to personalize the position of the picture on your TV by scrolling it to the left or right.




**– Color settings (SCART connection)**

You can select one of five predefined sets of color settings (SCART connection only) and one set (Personal) which you can define yourself.




**– Personal color**

Allows you to fine-tune the selected color settings (SCART connection only) saturation, brightness and contrast.

### Sound

**– Digital output**

Factory setting: ALL. This means that both coaxial and optical outputs are switched on. If you are not connecting equipment with a digital input, change the setting to OFF. If your equipment doesn't include a digital multi-channel decoder, set the digital output to PCM (Pulse Code Modulation). Both coaxial and optical outputs are switched on.

**– Analog output**

Select Stereo, Dolby Surround or 3D sound.

**– Night Mode**

Optimizes the dynamics of the sound with low volume playback.

**– Karaoke vocal**

Put this setting to ON only when a multi-channel karaoke DVD is being played. The karaoke channels on the disc will then be mixed into a normal stereo sound.

### Language

Select the required Menu, Audio and Subtitle language. See 'Initial Setup'.
Audio language and Subtitle language can also be adapted via the Menu bar on the screen.

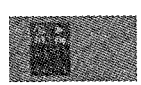
### Features

**– Access Control**

Access Control contains the following features:
Child Lock - When Child Lock is set to ON, a 4-digit code needs to be entered in order to play discs.
Parental control - Allows the conditional presentation of DVDs containing Parental Control information (see 'Access Control').

**– Status Window**

Displays the current status of the player and is displayed with the menu bar. When disc playback is stopped, it is displayed with the 'Temporary Feedback Field' in the default screen. See 'On-Screen Display' information;
Factory setting is ON. Select OFF to suppress display of the Status Window.



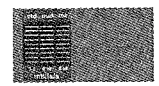




English

**– Bit Rate Indicator**

When activated, the bit rate for video, audio as well as total bit rate is displayed. This is only applicable during playback of DVD and SVCD discs



**– Beeper**

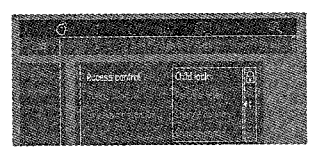
The beeper can be set to ON or OFF.

# Access control; child lock (DVD and VCD)

## Activating/deactivating the child lock

1. When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▽/△ keys.
2. Enter a 4-digit code of your own choice.
3. Enter the code a second time.
4. Move to **"CHILD LOCK"** using the ▽/△ keys.
5. Move to **LOCK/UNLOCK** using the ▷ key.
6. Select **LOCK** using the ▽/△ keys.
7. Press OK or ◁ to confirm, then press ◁ again to exit the menu.
   ➜ Now unauthorized discs will not be played unless the 4-digit code is entered.
8. Select **UNLOCK** to deactivate the **CHILD LOCK**.

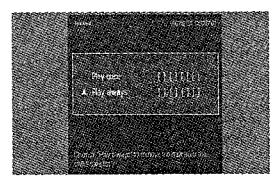
*Note: Confirmation of the 4-digit code is necessary when:*
*– The code is entered for the very first time (see above),*
*– The code is changed (see 'Changing the 4-digit code'),*
*– The code is cancelled (see 'Changing the 4-digit code').*




## Authorizing discs

- Insert the disc. See 'Loading disc'.
  ➜ The 'child protect' dialog will appear.
  You will be asked to enter your secret code for 'Play Once 'or 'Play Always.' if you select 'Play Once', the disc can be played as long as it is in the player and the player is ON. If you select 'Play Always', the disc will become child safe (authorized) and can always be played, even if the Child Lock is set to ON.

*Notes:*
*– The player memory maintains a list of 50 authorized ('Child safe') disc titles. A disc will be placed in the list when 'Play Always' is selected in the 'child protect' dialog.*
*– Each time a 'child safe' disc is played, it will be placed on top of the list. When the list is full and a new disc is added, the last disc in the list will be removed from the list.*
*– Double sided DVDs may have a different ID for each side. In order to make the disc 'child safe', each side has to be authorized.*
*– Multi-volume VCDs may have a different ID for each volume. In order to make the complete set 'child safe', each volume has to be authorized.*

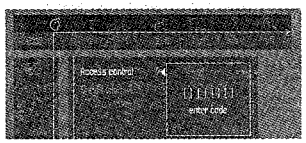


## Deauthorizing discs

- Insert the disc. See 'Loading disc'.
  ➜ Playback starts automatically.
- Press ■ while ☺ is visible.
  ➜ The ☹ will appear and the disc is now deauthorized.

## Access control; Parental control (DVD-Video only)

Movies on DVDs may contain scenes not suitable for children. Therefore, disc may contain 'Parental Control' information which applies to the complete disc or to certain scenes on the disc. These scenes are rated from 1 to 8, and alternative, more suitable scenes are available on the disc. Ratings are country dependent. The 'Parental Control' feature allows you to prevent discs from being played by your children or to have certain discs played with alternative scenes.



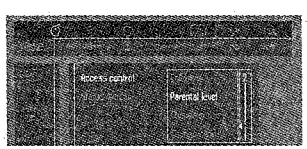

### Activating/Deactivating Parental Control

1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▽/△ keys.
2 Enter your 4-digit code. If necessary, enter the code a second time.
3 Move to Parental Control using the ▽/△ keys.
4 Move to **VALUE ADJUSTMENT** (1-8) using the ▷ key.
5 Then use the ▽/△ keys or the numerical keys on the remote control to select a rating from 1 to 8 for the disc inserted.

*Rating 0 (displayed as '– –'):*
Parental Control is not activated. The Disc will be played in full.

*Ratings 1 to 8:*
The disc contains scenes not suitable for children. If you set a rating for the player, all scenes with the same rating or lower will be played. Higher rated scenes will not be played unless an alternative is available on the disc. The alternative must have the same rating or a lower one. If no suitable alternative is found, play will stop and the 4-digit code has to be entered.

6 Press OK or ◁ to confirm, then press ◁ again to exit the menu.




### Country

1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▽/△ keys.
2 Enter the 4-digit code.
3 Move to **CHANGE COUNTRY** using the ▽ key.
4 Press the ▷ key.
5 Select a country using ▽/△.
6 Press OK or ◁ to confirm, then press ◁ again to exit the menu.

### Changing the 4-digit code

1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the ▽/△ keys.
2 Enter the old code.
3 Move to **CHANGE CODE** using the ▽ key.
4 Press the ▷ key.
5 Enter the new 4-digit code.
6 Enter the code a second time and reconfirm by pressing OK.
7 Press ◁ to exit the menu.

*Note:*
– *If you forget your 4 digit code, it can be cancelled by pressing ■ four times in the 'Access Control' dialog. You can then enter a new code (twice!) as described above.*

### Parental Control Disclaimer

This DVD player features the **PARENTAL CONTROL** system which is intended to activate when playing DVD discs furnished with certain software coding. This is according to technical standards adopted by the set maker and disc content industries.
Please note that the **PARENTAL CONTROL** system will not operate a DVD disc which is not furnished with the appropriate software coding. Also note that at the time of release of this DVD player, certain aspects of the technical standards had not been settled between set makers and the disc industries.
On this basis Philips cannot guarantee the functioning of **PARENTAL CONTROL** system and denies any liability associated with unintended watching of disc content.
If in doubt, please make sure the disc plays according to your **PARENTAL CONTROL** settings before you allow children access.



English

English

# Operation

## Loading discs

1 Press OPEN/CLOSE on the front of the player. The disc tray opens.
2 Load your chosen disc in the tray, label side up (also when a double sided DVD is inserted). Make sure it is sitting properly in the correct recess.
3 Press OPEN/CLOSE, to close the tray.
→ READ appears in the status window and on the player display, and playback starts automatically.

*Note:*
– *If 'Child Lock' is set to ON and the disc inserted is not in the 'child safe' list (not authorized), the 4-digit code must be entered and/or the disc must be authorized (see 'Access Control').*

## Playing a DVD-video disc

### Playing a title

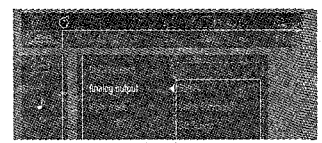
- After inserting the disc and closing the tray, playback starts automatically and the status window and the player display show the type of disc loaded, as well as information about the disc's contents and playing time.
The disc may invite you to select an item from a menu. If the selections are numbered, press the appropriate numerical key; if not, use the ▽/△, ◁/▷ keys to highlight your selection, then press OK.
- The currently playing title and chapter number are displayed in the menu bar and the player display.
The elapsed playing time is shown in the status window and the player display.
- Play may stop at the end of the Title, and the player may return to the DVD menu. To go on to the next title, press ▶.
- To stop play at any other time, press ■.
→ The default screen will appear, giving information about the current status of the player.
- You can resume play from the point at which you stopped play. Press ▶; when you see the Resume icon I▶ on the screen, press ▶ again.
→ The RESUME feature applies not only to the disc in the player, but also to the last four discs you have played. Simply reload the disc, and press ▶; when you see the Resume icon I▶ on the screen , press ▶ again.

*Note:*
– *Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes.*
– *Discs can have an optional region code. If you load a disc of a different region code into your player, you will see the region code notice on the screen.*
– *The disc will not play and should be removed from the player.*

## Playing a Video CD

### Playing a disc

- After inserting the disc and closing the tray, playback starts automatically and the status window and the player display show the type of disc loaded, as well as information about the disc's contents and playing time.
- The disc may invite you to select an item from a menu. If the selections are numbered, press the appropriate numerical key.
- The currently playing track number is displayed in the menu bar and the player display. The elapsed playing time is shown in the status window and the player display.
- To stop play at any time, press ■.
→ The default screen will then appear.
- You can resume play from the point at which you stopped play. Press ▶; when you see the Resume icon I▶ on the screen, press ▶ again.
→ The RESUME feature applies not only to the disc in the player, but also to the last four discs you have played. Simply reload the disc, and press ▶; when you see the Resume icon I▶ on the screen , press ▶ again.



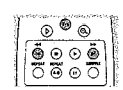

## General features

*Note:*
– *Unless stated otherwise, all operations described are based on remote control operation. A number of operations can also be carried out via the menu bar on the screen (see 'Menu bar operation').*

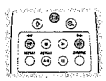
### Moving to another title/track

When a disc has more than one title or track (which you can see from both the menu bar and the player display), you can move to another title as follows:

- Press T-C (**TITLE/TRACK**), then press ▶I briefly during play to select the next title/track.
- Press T-C (**TITLE/TRACK**), then press I◀ briefly during play to return to the beginning of the current title/track. Press I◀ twice briefly to step back to the previous title/track.



## Moving to another chapter/index

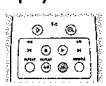


When a title on a disc has more than one chapter or a track has more than one index (which you can see from the player display and on the menu bar), you can move to another chapter/index as follows:

- Press ▶| briefly during play to select the next chapter/index.
- Press |◀ briefly during play to return to the beginning of the current chapter/index. Press |◀ twice briefly to step back to the previous chapter/index.
- To go directly to any chapter or index, select T-C (**CHAPTER/INDEX**), then enter the chapter/index number using the numerical keys (0-9).

*Note:*
*– If the number has more than one digit, press the keys in rapid succession.*

## Still Picture and Frame-by-frame playback



- Select ◁▯▷ (**PICTURE BY PICTURE**) in the menu bar.
- Use the ▽ key to enter the picture by picture menu.
  ➜ The player will now go into **PAUSE** mode.
- Use the cursor keys ◁ ▷ to select the previous or next picture frame.
- To exit **PICTURE BY PICTURE** mode, press ▶ or △.

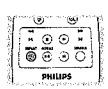
You can also step forward by pressing **II** repeatedly on the remote control.

## Search

- Select ⏩ (**FAST MOTION**) in the menu bar.
- Use the ▽ keys to enter the **FAST MOTION** menu.
- Use the ◁ ▷ keys to select the required speed: -32, -8 or -4 (backward), or +4, +8, +32 (forward).
- Select 1 to play at normal speed again.
- To exit **FAST MOTION** mode, press ▶ or △.

To search forward or backward through different speeds, you can also hold down ◀◀ or ▶▶.

## Repeat



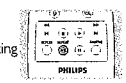
**DVD-Video Discs - Repeat chapter/title/disc**

- To repeat the currently playing chapter, press REPEAT.
  ➜ **REPEAT CHAPTER** appears on the player display.
- To repeat the title currently playing, press REPEAT a second time
  ➜ **REPEAT TITLE** appears on the display.
- To repeat the entire disc, press REPEAT a third time
  ➜ **REPEAT** appears on the display.
- To exit Repeat mode, press REPEAT a fourth time.

**Video CDs - Repeat track/disc**

- To repeat the track currently playing, press REPEAT.
  ➜ **REPEAT TRACK** appears on the player display.
- To repeat the entire disc, press REPEAT a second time.
  ➜ **REPEAT** appears on display and screen.
- To exit Repeat mode, press REPEAT a third time.

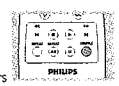
## Repeat A-B



To repeat a sequence in a title:

- Press REPEAT A-B at your chosen starting point;
  ➜ **A-** appears briefly on the screen.
- Press REPEAT A-B again at your chosen end point;
  ➜ **A-B REPEAT** appears briefly on the display, and the repeat sequence begins.(**A-B REPEAT** is displayed on the front panel of the player)
- To exit the sequence, press REPEAT A-B.

## Shuffle



**DVD-Video discs**
This shuffles the playing order of chapters within a title, if the title has more than one.

- Press SHUFFLE during play.
  ➜ **SHUFFLE** appears on the screen for about 2 seconds.
- To return to normal play, press SHUFFLE again.

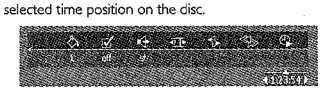
**Video CDs**
This shuffles the playing order of the tracks, if the disc has more than one.

- Press SHUFFLE during play.
  ➜ **SHUFFLE** appears on the screen for about 2 seconds.
- To return to normal play, press SHUFFLE again.

## Time search

The Time Search function allows you to start playing at any chosen time on the disc.

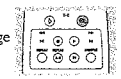
- Select ⏲ (**TIME SEARCH**) in the menu bar.
- Press ▽.
  ➜ The player will now go into **PAUSE** mode.
  ➜ A time edit box appears on the screen, showing the elapsed playing time of the current disc.
- Use the digit keys to enter the required start time. Enter hours, minutes and seconds from left to right in the box.
  ➜ Each time an item has been entered, the next item will be highlighted.
- Press OK to confirm the start time.
  ➜ The time edit box will disappear and play starts from the selected time position on the disc.





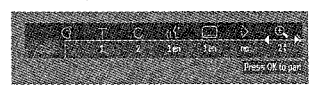


## Zoom



The Zoom function allows you to enlarge the video image and to pan through the enlarged image.

- Select ⊕ (**ZOOM**).
- Press ▽/△ to activate the **ZOOM** function and select the required zoom factor: 1.33 or 2 or 4.
  ➜ The player will go into Pause mode.
  ➜ The selected zoom factor appears below the Zoom icon in the menu bar and '*Press OK to pan*' appears below the menu bar.
  ➜ The picture will change accordingly.
- Press OK to confirm the selection.
  ➜ The panning icons appear on the screen: ◁ ▷ ▽ △ and OK.
- Use the ◁ ▷ ▽ △ keys to pan across the screen.
- When OK is pressed only the zoomed picture will be shown on the screen.
- If you wish to zoom at any moment, press ⊕ (**ZOOM**) and select the required zoom factor as described above.
- To exit **ZOOM** mode:
  – Press ▶.
  ➜ Playback will resume.
  – Press STOP, MENU OSD.




## FTS-Video

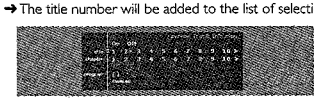
- The FTS-Video function allows you to store your favorite titles and chapters (DVD) and favorite tracks and indexes (VCD) for a particular disc in the player memory.
- Each FTS program can contain 20 items (titles, chapters).
- Each time an FTS program is played it will be placed on top of the list. When the list is full and a new program is added, the last program in the list will be removed from the list.
- The selections can be called up and played at any time.

**Storing a FTS-Video Program**

- In STOP mode, select **VIDEO FTS** ☑ in the menu bar.
- Press ▽ to open the menu.
  ➜ The **VIDEO FTS** menu appears.
- Press ▷ or ◁ or FTS to select ON or OFF.

**Storing titles/tracks**

- Press ▽ to select **TITLES**.
- Use ▷ and ◁ to select the required title.
- Press OK if you wish to store the entire title.
  ➜ The title number will be added to the list of selections.



**Storing chapters/indexes**

- Press ▽ on the selected title number.
  ➜ The title number will be marked and the highlight moves to the first available chapter number for this title.
- Use ▷ and ◁ to select the required chapter number.
- Press OK to confirm the selection.
  ➜ The title/chapter selection will be added to the list of selections.
- Press MENU OSD to exit the **VIDEO FTS** ☑ menu.

**Erasing a FTS-Video Program**

- In STOP mode, select **VIDEO FTS** ☑ in the menu bar.
- Use ▽ to select **PROGRAM**.
- Use ▷ and ◁ to select the required selection number.
- Press OK to erase the selection.
- Press MENU OSD to exit.

**If you wish to erase all selections:**

- In STOP mode, select **VIDEO FTS** ☑ in the menu bar.
- Use ▽ to select **CLEAR ALL**.
- Press OK.
  ➜ All selections will now be erased.
- Press MENU OSD to exit.

# Special DVD features

## Checking the contents of DVD-Video discs: Menus

For titles and chapters, selection menus may be included on the disc. The DVD's menu feature allows you to make selections from these menus. Press the appropriate numerical key; or use the ▽, △, ▷, ◁ keys to highlight your selection, then press OK.

## Title menus

- Press MENU DVD.
  ➜ If the current title has a menu, the menu will appear on the screen. If no menu is present in the title, the disc menu will be displayed.
- The menu can list camera angles, spoken language and subtitle options, and chapters for the title.
- To remove the title menu, press MENU DVD again.

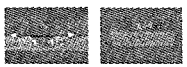
## Disc menu

- Press T-C then press MENU DVD.
  ➜ The disc menu is displayed.
- To remove the disc menu, press T-C, then press MENU DVD.

### Camera Angle

If the disc contains sequences recorded from different camera angles, the angle icon appears, showing the number of available angles and the angle being shown currently. You can then change the camera angle if you wish.

- Use the ▽/△ keys to select the required angle in the angle icon.
  ➜ After a small delay, play changes to the selected angle. The angle icon remains displayed until multiple angles are no longer available.

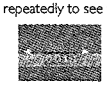


### Changing the audio language

- Select (**AUDIO**) in the menu bar.
- Press or ▽/△ repeatedly to see the different languages.

### Subtitles

- Select (**SUBTITLE**) in the menu bar.
- Press or ▽/△ repeatedly to see the different subtitles.



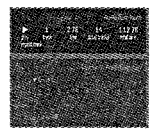
## Special VCD-Features

### Playback Control (PBC)

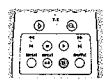
- Load a Video CD with PBC and press ▶.
- Go through the menu with the keys indicated on the TV screen until your chosen passage starts to play. If a **PBC** menu consists of a list of titles, you can select a title directly.
- Enter your choice with the numerical keys (0-9).
- Press RETURN to go back to the previous menu.
- You may also set to **PBC OFF** under Personal Preferences.

## Playing an audio CD

- After loading the disc, playback starts automatically.
- If the TV is on, the Audio CD screen appears.
- The number of tracks and the total playing time will be shown on the screen.
- During play, the current track number and its elapsed playing time will be shown on the screen and on the player display.
- Playback will stop at the end of the disc.
- To stop play at any other time, press ■.

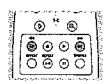


### Pause



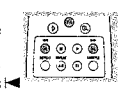
- Press **II** during play.
- To return to play, press ▶.

### Search



- To search forward or backward through the disc at four times normal speed, hold down ◀◀ or ▶▶ for about one second during play.
  ➜ Search begins, and sound is partially muted.
- To step up to eight times the normal speed, press ◀◀ or ▶▶ again.
  ➜ Search goes to eight times the speed, and the sound is muted.
- To return to four times the normal speed, press ◀◀ or ▶▶ again.
- If the TV is on, search speed and direction are indicated on the screen each time ◀◀ or ▶▶ is pressed.
- To end the search, press ▶ to resume playback or ■ to stop.

### Moving to another track

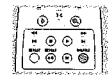


- Press ▶| briefly during play to go to the next track.
- Press |◀ briefly during play to return to the beginning of the current track. Press |◀ twice briefly to step back to the previous track.
- To go directly to any track, enter the track number using the numerical keys (0-9).



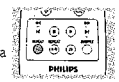


### Shuffle



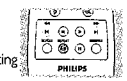
- Press SHUFFLE during play.
  ➜ The order of the tracks is changed.
- To return to normal play, press SHUFFLE again.

### Repeat track/disc



- To repeat the track currently playing, press REPEAT.
  ➜ **REPEAT TRACK** appears on the display.
- To repeat the entire disc, press REPEAT a second time.
  ➜ **REPEAT** appears on the display.
- To exit Repeat mode, press REPEAT a third time.

### Repeat A-B

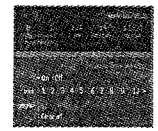


To repeat a sequence:

- Press REPEAT A-B at your chosen starting point;
  ➜ **A-** appears on the player display.
- Press REPEAT A-B again at your chosen end point;
  ➜ **A-B** appears on the display, and the sequence begins to play repeatedly.
- To exit the sequence, press REPEAT A-B again.

## FTS Program

- FTS Program allows you to store your favorite tracks for a particular disc in the player memory.
- Each FTS Program can contain 20 tracks.



### Storing an FTS Program

1. Load a disc and stop playback.
2. Use ▽ to go to the list of available tracks.
3. Use ▷ or ◁ to select tracks from the list.
   To go directly to any track, enter the track number using the numerical keys (0-9).
4. Store each track by pressing OK.
   ➜ The track numbers will be added to the list of selected tracks.
   ➜ The number of tracks and the playing time of the program will be shown on the screen and the player display.

   When your FTS Program is complete, press ▶ to start play, or △ to go back to Stop mode. In either case, the FTS Program will be automatically memorized.

#### Switching FTS ON/OFF

1. Use △ ▽ to move to the top.
2. Use ▷ or ◁ to select either ON or OFF.

#### Erasing a track from an FTS Program

1. Use ▽ to go to the list of selected tracks.
2. Use ▷ and ◁ to select the track number you wish to erase.
3. Press OK.
   ➜ The track number will be erased from the list of selected tracks.

#### Erasing the complete program

1. Use ▽ to select **CLEAR ALL**, then press OK.
   ➜ The complete FTS Program for the disc will be erased.

# Before Requesting Service

English

If it appears that the DVD-Video player is faulty, first consult this checklist. It may be that something has been overlooked. Under no circumstances attempt to repair the system yourself; this will invalidate the warranty.

Look for the specific symptom(s). Then perform only the actions listed to remedy the specific symptom(s).

| Symptom | Remedy |
|---|---|
| **No power** | ● Make sure the mains cord (AC) is properly connected.<br>● Check if there is power at the AC outlet by plugging in another appliance. |
| **No picture** | ● Check if the TV is switched on.<br>● Check the video connection. |
| **Distorted picture** | ● Check the disc for fingerprints and clean with a soft cloth, wiping from center to edge.<br>● Sometimes a small amount of picture distortion may appear .This is not a malfunction. |
| **Completely distorted picture or no color with player menu.** | ● If the picture is distorted completely or if the picture rolls vertically, make sure the NTSC/PAL setting at the DVD player matches the video signal of your television.<br>● If your TV video signal is NTSC, select the NTSC setting at the DVD player.<br>● If your video signal is PAL, select the PAL setting - see NTSC/PAL SETTINGS. |
| **Distorted or Black/White picture with DVD or Video CD.** | ● The disc format does not match your TV's video signal (PAL/NTSC). |
| **No sound** | ● Check audio connections.<br>● If you are using a HiFi amplifier, try another sound source. |
| **Distorted sound from HiFi amplifier.** | ● Check to make sure that no audio connections are made to the amplifier phono input. |
| **No audio at digital output.** | ● Check the digital connections.<br>● Check the settings menu to make sure the digital output is set to ALL or PCM.<br>● Check if the audio format of the selected audio language matches your receiver capabilities. |
| **Disc can't be played.** | ● Ensure the disc label is facing up.<br>● Clean the disc.<br>● Check if the disc is defective by trying another disc.<br>● Check to see if the disc is defective, badly scratched or warped (not flat) |
| **No return to start-up screen when disc is removed.** | ● Reset by switching the player off, then on again.<br>● Check to see if the program requires another disc to be loaded. |
| **The player does not respond to the remote control.** | ● Aim the remote control directly at the sensor on the front of the player.<br>● Remove any obstacles between the player and the remote control.<br>● Inspect or replace the batteries in the remote control. |
| **Buttons do not work.** | ● In order to completely reset the player, unplug the AC cord from the AC outlet. (Please ensure that the set is not in Initial Setup mode) |
| **Player does not respond to all operating commands during playback.** | ● Operations are not permitted by the disc. Refer to the instructions of the disc. |
| **DVD-Video player cannot read CDs/DVDs** | ● Use a commonly available cleaning CD/DVD to clean the lens before correctly taking the DVD-Video player to be repaired. |

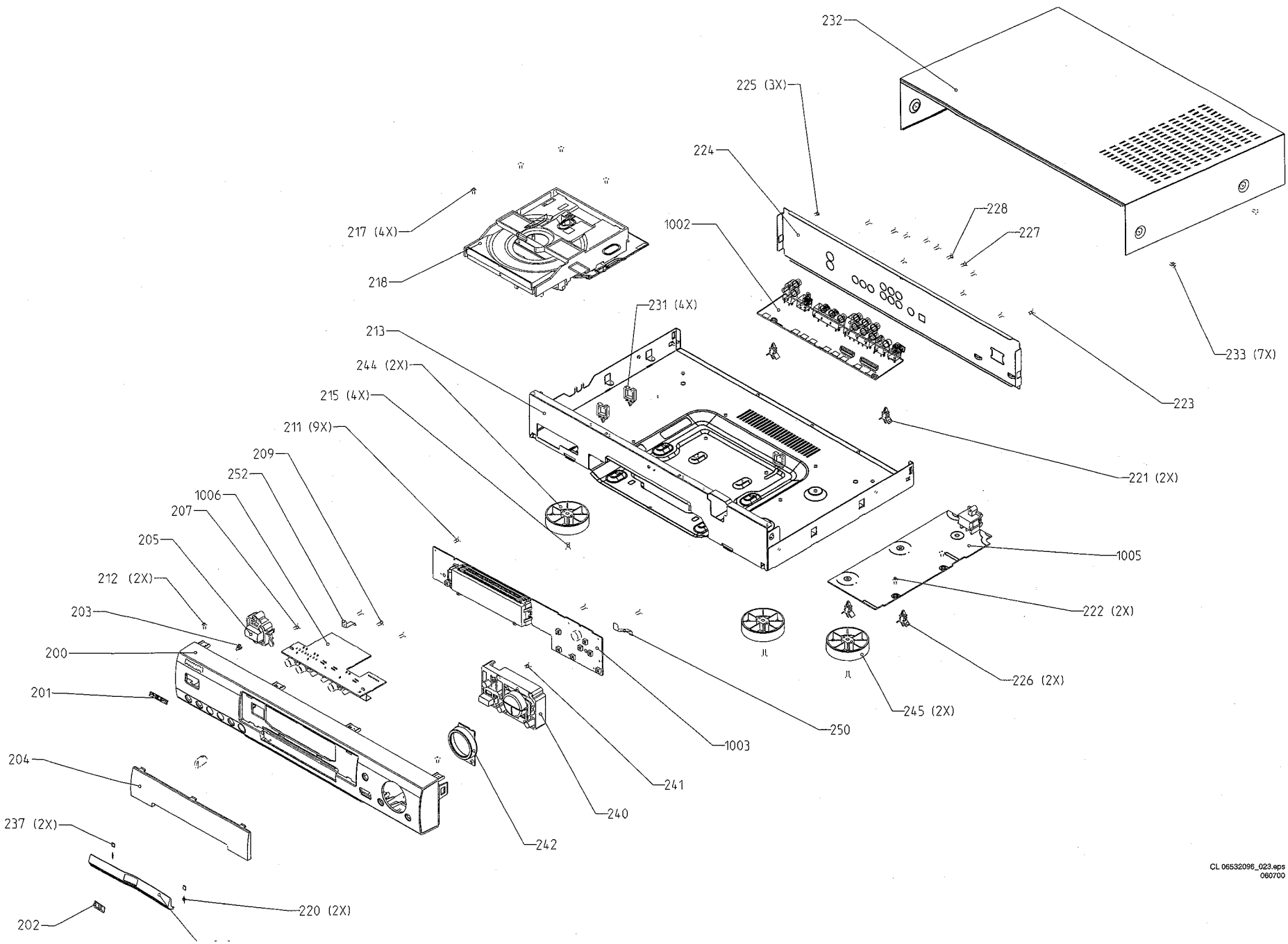


***Personal notes:***

# 4. Dismantling instructions and exploded view

## DISMANTLING INSTRUCTIONS

See exploded view for item numbers


232
225 (3X)
224
228
227
1002
217 (4X)
218
231 (4X)
213
244 (2X)
215 (4X)
211 (9X)
209
252
1006
207
205
212 (2X)
203
200
201
204
237 (2X)
202
220 (2X)
233 (7X)
223
221 (2X)
1005
222 (2X)
226 (2X)
245 (2X)
250
1003
241
240
242
CL 06532096_023.eps
060700

# 5. Diagnostic software descriptions and troubleshooting

## 5.1 Dealerscript V1.1

### 5.1.1 Purpose of Dealer Script

The dealer script can give a diagnosis on a standalone DVD player; no other equipment is needed to perform a number of hardware tests to check if the DVD player is faulty. The diagnosis is simply a "error" or "pass" message; no indication is given of faulty hardware modules. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

### 5.1.2 Contents of Dealer Script

The dealer script executes all diagnostic nuclei that do not need any user interaction and are meaningful on a standalone DVD player.
The nuclei called in the dealer script are the following (the number after each nucleus name corresponds with the number being on the local display when the nucleus is executed during the dealer script):

| Nucleus | | Description |
|---|---|---|
| VideoColSetupComm | 7 | Checks the I2C interface with the RGB video processor on the Audio/Video board (only for DVD players with RGB video processor). |
| PapChksFl | 6 | Calculate and verify checksum of FLASH memory. |
| PapI2cDisp | 5 | Checks the I2C interface with the slave processor on the display PCB. |
| PapS2bEcho | 4 | Checks the I2C interface to the basic engine. |
| PapI2cNvram | 3 | Checks the I2C interface with the NVRAM. |
| PapNvramWrR | 2 | Pattern test of all locations in the NVRAM |
| CompSdramWrR | 1 | Pattern test of all locations in the SDRAM(s). |

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**Figure 5-1**

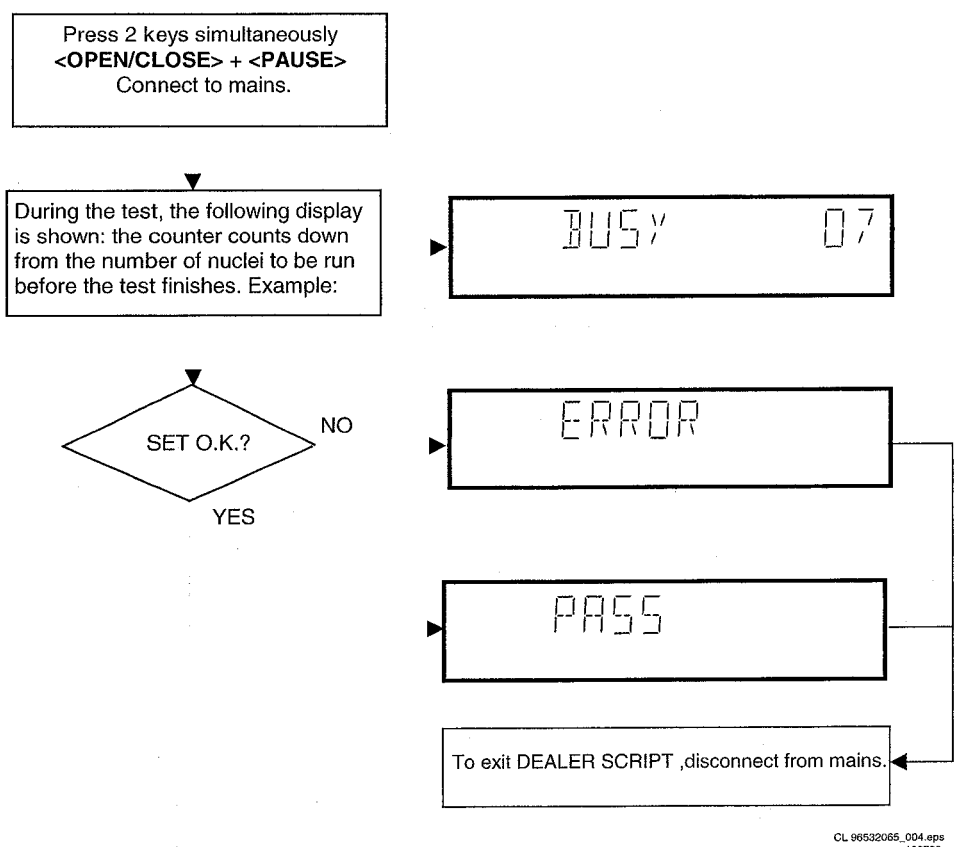


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**Figure 5-2**

## 5.2 PLAYER SCRIPT

### 5.2.1 Purpose of Player Script

The Player script will give the opportunity to perform a test that will determine which of the DVD player's modules are faulty, to read the error log and error bits and to perform an endurance loop test. To successfully perform the tests, the DVD player must be connected to a tv set to check the output of a number of nuclei. For DVDv2b a multi-channel amplifier, a set of 6 boxes and an external video source are necessary to test. To be able to check results of certain nuclei, the player script expects some interaction of the user (i.e. to approve a test picture or a test sound). Some nuclei (e.g. nuclei that test functionality of the Basic Engine module) require that the DVD player itself is opened, to enable the user to observe moving parts and approve their movement visually. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

### 5.2.2 Contents of Player Script

The player script contains all nuclei that are useful on a DVD player that is connected to a tv-set and help to determine which module of the DVD player is faulty, as well as to read out the contents of the error logs.

### 5.2.3 Structure of Player Script

The player script consists of a set of nuclei testing the three hardware modules in the DVD player: the Display PWB, the Digital PWB and the Basic Engine.
Nuclei run by the player test need some user interaction; in the next paragraph this interaction is described. The player test is done in two phases:

1. Interactive tests: this part of the player test depends strongly on user interaction and input to determine nucleus results and to progress through the full test. Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player.
2. The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely.

### 5.2.4 Survey

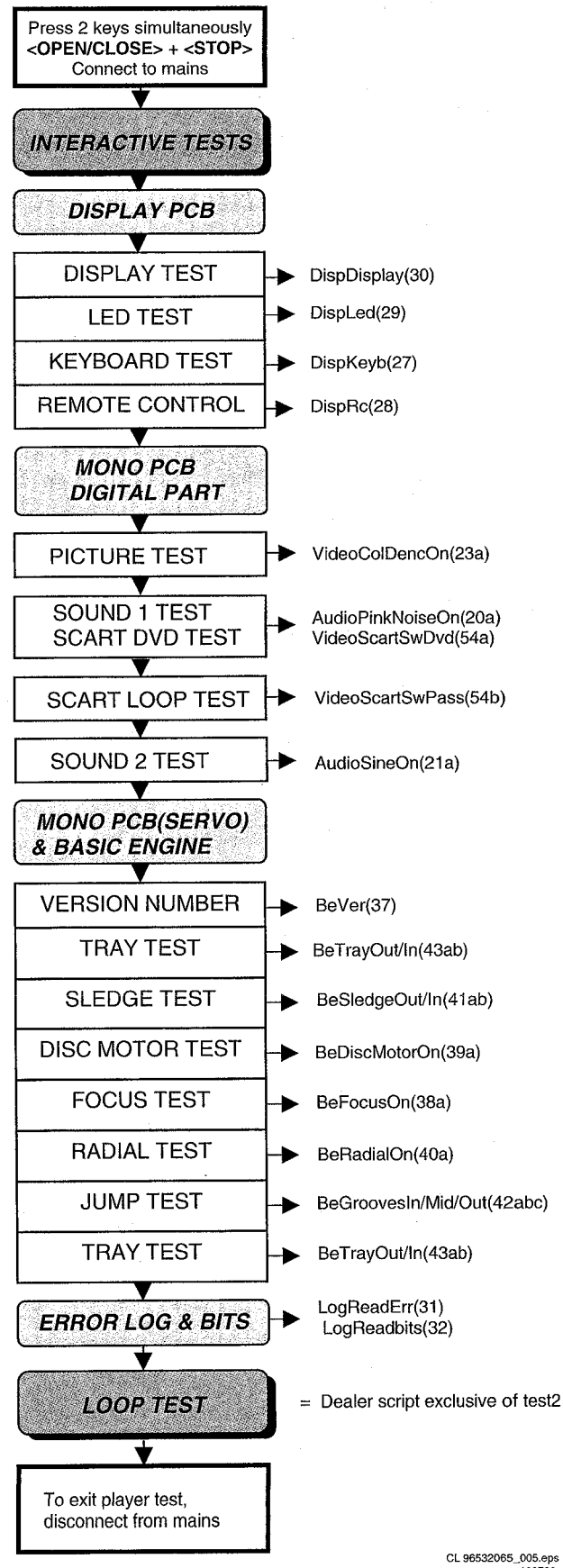


**Figure 5-3**

## 5.3 DISPLAY PCB

### 5.3.1 DISPLAY TEST

The display test is performed by nucleus DispDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press PLAY (pattern is ok) or PAUSE (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner until the user presses NEXT. If the user presses NEXT before all display patterns are tested, the DispDisplay nucleus will return TRUE (display test successful).

### 5.3.2 LED TEST

The LED(s) on the DVD player is (are) tested by nucleus DispLed. The user must check if the LED(s) is (are) lighted; if it is, press PLAY, if it is not, press PAUSE. By pressing NEXT the script will proceed to the next test. If the user presses NEXT before PLAY or PAUSE, the DispLed nucleus will return TRUE (LED test successful).

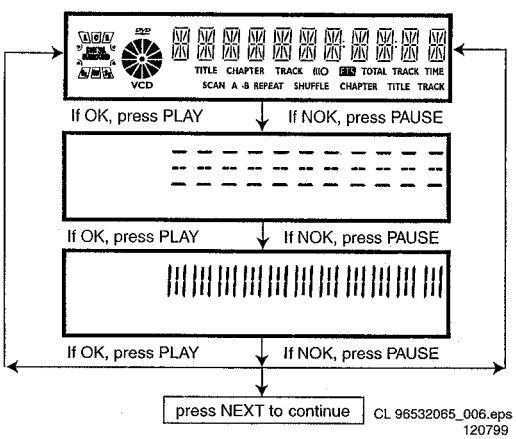


**Figure 5-4**

### 5.3.3 KEYBOARD TEST

The keyboard of the DVD player is tested by nucleus DispKeyb. The user is expected to press all keys on the local keyboard once. The code of the key pressed is shown on the local display (1 hexadecimal digit) immediately followed by a (hexadecimal) number indicating how many times that key has been pressed. Example of the local display during this test:

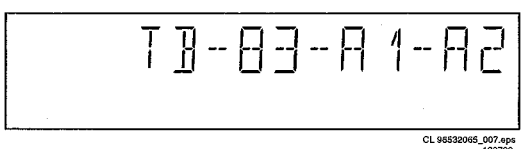


**Figure 5-5**

The key-codes displayed on the local display will scroll from right to left when the display gets full, the text "tb-" will remain on display.

| key id. | key |
|---|---|
| 0 | PLAY |
| 1 | NEXT |
| 2 | PREVIOUS |
| 3 | PAUSE |
| 4 | STOP |
| 5 | OPEN/CLOSE |
| 6 | 3D-SURROUND |
| 7 | KEY- (Mic Control) |
| 8 | Once More (Mic Control) |
| 9 | KEY+(Mic Control) |
| A | FORWARD |
| B | STAND BY |

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**Figure 5-6**

If any keys are detected more than once (due to hardware error), the key-code is displayed twice (or more), with the second digit increased by 1.
If the user does not press all keys minimally once (in any order), the DispKeys nucleus will return FALSE and cause an error in the overall result of the player script.
The test will also pass if all buttons, except the microphone key buttons, are pressed.
The user can leave the keyboard test by pressing the NEXT key on the local display of the DVD player for at least one full second.
The result of the keyboard test is shown on local display as follows:

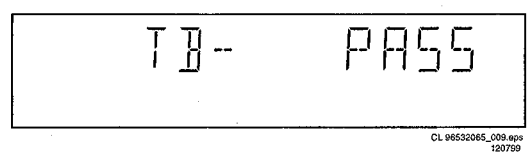


**Figure 5-7**

Or

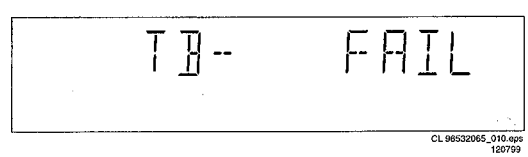


**Figure 5-8**

Pressing NEXT on the local keyboard again will proceed to the next text.

### 5.3.4 REMOTE CONTROL TEST

The remote control of the DVD player is tested by nucleus DispRc. The user must press any key on the remote control just once. The codes of the key pressed will be shown on the local display in hexadecimal format. Example:

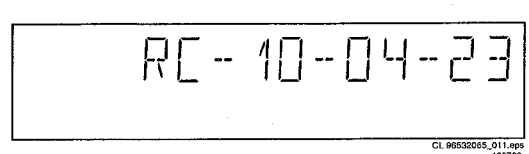


**Figure 5-9**

In this example 23 is the hexidecimal code of the pressed RC key. The user can leave the remote-control test by pressing

NEXT on the local keyboard of the DVD player. The remote control test is successful if a code was received before the user pressed the NEXT key; pressing the NEXT key before pressing a key on the remote control gives an error in the remote control test (note that the remote control test will also fail if a key on the remote control was pressed but no code was received). The remote control test does not check upon the contents of the received code, that is it will not be checked if the received code matches the key pressed. If desired, the user can manually check this code by using a code-table for the remote control key-codes.

| C Key id | Hexadecimal code |
|---|---|
| STANDBY | 0C |
| STOP | 31 |
| PLAY | 2C |
| PLAY BACKWARD | 2D |
| PAUSE | 30 |
| STEP FORWARD | F6 |
| STEP BACKWARD | F5 |
| FORWARD | 28 |
| FORWARD 4X | DF |
| FORWARD 8X | E0 |
| BACKWARD | 29 |
| BACKWARD 4X | DE |
| BACKWARD 8X | DD |
| SLOW | 22 |
| SLOW 2 | D9 |
| SLOW BACKWARD | 23 |
| SLOW BACKWARD 2 | DA |
| NEXT | 20 |
| PREVIOUS | 21 |
| CURSOR UP | 58 |
| CURSOR DOWN | 59 |
| CURSOR LEFT | 5A |
| CURSOR RIGHT | 5B |
| OK | 5C |
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| TOGGLE | C8 |
| ANGLE | 85 |
| AUDIO | 4E |
| SUBTITLES | 4B |
| SUBTITLE ON/OFF | E3 |
| ROOT MENU | 54 |
| TITLE MENU | 71 |
| MENU | D1 |
| SETUP MENU | 82 |
| OSD ON/OFF | F |
| RETURN | 83 |
| RESUME | D7 |
| SCAN | 2A |
| SHUFFLE | 1C |
| REPEAT | 1D |
| A/B REPEAT | 3B |
| TOGGLE SCART | 43 |
| OPEN/CLOSE | 42 |
| FTS | FB |
| KARAOKE | E4 |
| OPTION | FA |

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**Figure 5-10**

After pressing NEXT, the result of the remote control test is displayed on the local display of the DVD player as follows:

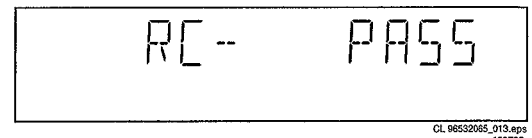


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**Figure 5-11**

Or

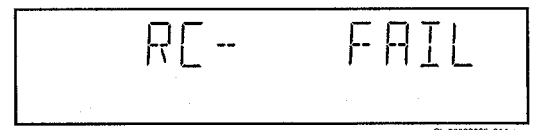


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**Figure 5-12**

Pressing NEXT on the local keyboard again will proceed to the next test.

## 5.4 MONO PCB DIGITAL PART

### 5.4.1 PICTURE TEST

The picture test is performed by putting a predefined picture (colour bar) on the display (nucleus VideoColDencOn) and asking the user for confirmation. The display will show the following message:

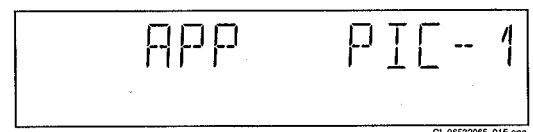


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**Figure 5-13**

By pressing PLAY the user confirms the test, pressing PAUSE will indicate the picture was invisible or incorrect. Pressing NEXT will proceed to the next test

### 5.4.2 SOUND 1 & SCART DVD TEST

The first soundtest is performed by starting a pink noise sound that needs confirmation from the user (nucleus AudioPinkNoiseOn); the display will show the following message very shortly:

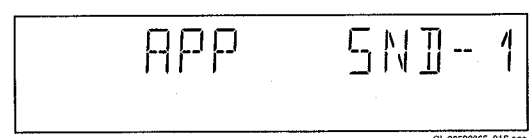


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**Figure 5-14**

This sound will only be audible from version cut3.1 of Sti5505(item7503 on mono board) onwards. After starting up sound 1, SCART loop-trough will be simultaneously active during this test. SCART loop-trough will be measured with the aid of an external video source.
When entering the SCART loop-trough, the local display indicates:

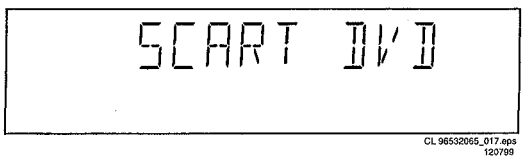


**Figure 5-15**

On the TV screen a colour bar (generated by nucleus VideoColDencOn) is visual and the internally generated pinknoise is audible. By pressing PLAY the user confirms the test, pressing PAUSE will indicate the sound was inaudible or incorrect. Pressing NEXT will proceed to the next test; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok). By pressing the NEXT button there will be switched over to the external source, this must become now visible on the TV screen (using the SCART). The local display indicates:

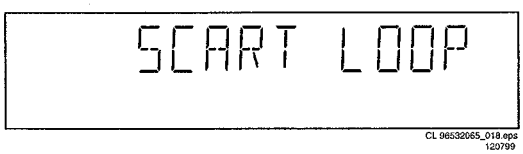


**Figure 5-16**

The internally generated colour bar is still available on the CVBS and Y/C outputs. And the pinknoise-signal is still available on the cinch audio outputs. By pressing the PREV button, the internal generated colour bar becomes visual again.
The test can be left by pressing the NEXT key for more than one second.

### 5.4.3 SOUND 2 TEST

The second soundtest is performed by producing a sine sound (nucleus AudioSineOn). The signal can be stopped by pressing the STOP-key. The display will show the following message:

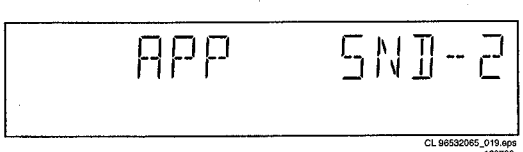


**Figure 5-17**

By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong. Pressing NEXT will proceed to the next; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok).

### 5.4.4 Colour setup test

The colour setup test is performed by putting the internally generated colour bar in different settings on the TV screen. The first colour bar will be displayed in setting 1. the display will show the following message:

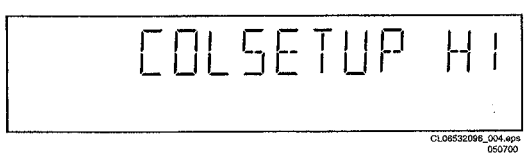


**Figure 5-18**

By pressing the NEXT button, you can go to the second setting. The local display indicates:

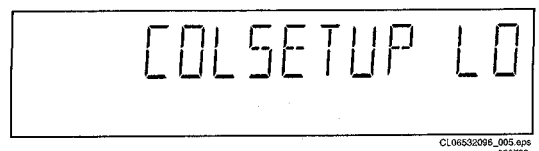


**Figure 5-19**

By pressing the PREVIOUS button, the colour bar with the first setting becomes visual again.
By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong.
The test can be left by pressing the NEXT key for more than one second; if the user presses NEXT without pressing PLAY or PAUSE first, the result of the test will be TRUE )colour set-up ok).

## 5.5 BASIC ENGINE

### 5.5.1 VERSION NUMBER

In the basic engine tests, the version number of the Basic Engine will be shown first, as the following example:

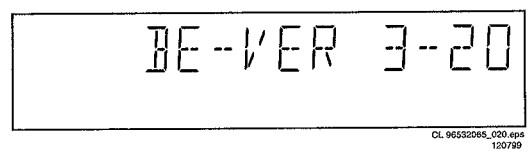


**Figure 5-20**

By pressing the NEXT key, the Basic Engine tests are started.

### 5.5.2 TRAY TEST

First, the tray is tested. The purpose of this test is also to give the user the opportunity to put a disc in the tray of the DVD player. Some tests on the Basic Engine require that a disc(e.g. DVD MPTD test disc) is present in the player. At the end of the Basic Engine tests this tray test will be repeated solely to enable the user to remove the disc in the tray. The local display will look as follows:

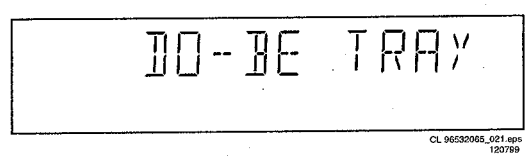


**Figure 5-21**

By pressing PLAY or PAUSE the user can toggle the position of the tray. Note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT will proceed to the next test, after the tray has been closed (by the software) if it was open.

### 5.5.3 SLEDGE TEST(visual test)

The second Basic Engine test tests the sledge; the user can move the sledge as many times as desired by using PLAY (nucleus BeSledgeOut) and PAUSE (nucleus BeSledgeIn). Pressing NEXT on the local keyboard proceeds to the next test. Note that this test will not contribute to the test result of

the Basic Engine. The local display will look as follows during the sledge test:

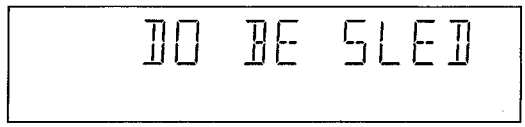


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**Figure 5-22**

### 5.5.4 DISC MOTOR TEST(visual test)

The third Basic Engine test tests the disc motor (nucleus BeDiscMotorOn); the local display looks as follows:

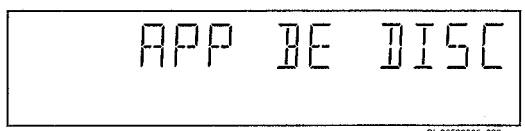


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**Figure 5-23**

By pressing PLAY the user confirms that the disc motor is running; pressing PAUSE indicates the disc motor does not work. Pressing NEXT proceeds to the next test, after a reset of the disc motor (nucleus BeDiscMotorOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (disc motor is running).

### 5.5.5 FOCUS TEST(visual test)

The fourth Basic Engine test tests the focussing; first focussing is turned on by calling nucleus BeFocusOn. The display will look as follows:

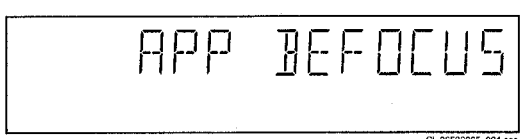


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**Figure 5-24**

By pressing PLAY the user confirms that the focussing was succesful; pressing PAUSE indicates a focussing failure. Pressing NEXT proceeds to the next test after a reset of the focussing (nucleus BeFocusOff); if NEXT is pressed before PLAY or PAUSE, the result of this test will be TRUE (focus successful).

### 5.5.6 RADIAL TEST(visual & listening test)

The fifth Basic Engine test tests the radial functionality (nucleus BeRadialOn); the local display looks as follows:

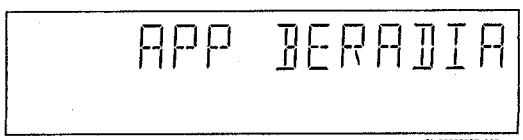


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**Figure 5-25**

By pressing PLAY the user confirms that the radial function worked; pressing PAUSE indicates the function does not work. Pressing NEXT proceeds to the next test, after a reset of the radial (nucleus BeRadialOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (radial successful).

### 5.5.7 JUMP TEST(listening test)

The sixth and last Basic Engine test tests the jumping by calling nuclei BeGroovesIn, BeGroovesMid and BeGroovesOut. During this test, the local display looks as follows:

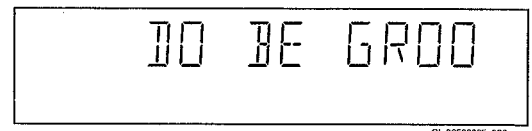


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**Figure 5-26**

The user can switch between the three different types of groove settings by pressing PLAY (forward to next nucleus in the list In-Mid-Out) or PAUSE (backward in the list In-Mid-Out). This is done in a cyclic manner; note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

### 5.5.8 TRAY TEST

As a last action for the Basic Engine tests, the tray test is repeated. The local display will look as follows:

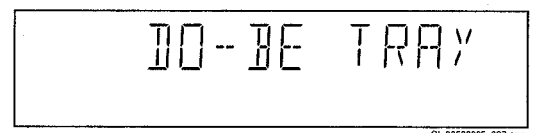


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**Figure 5-27**

This test is meant to give the user the opportunity to remove the disc in the tray. The tray position can be toggled using the PLAY and PAUSE key. The tray will be closed (by the software, if it is open) before proceeding to the next test when the user presses the NEXT key.

### 5.5.9 ERROR LOG (see table on page 27)

Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player. Reading the error log is done by nucleus LogReadErr. The display during the errorlog readout looks as follows :

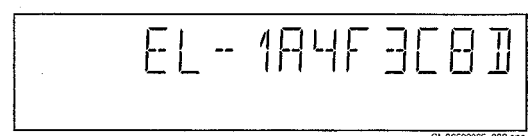


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**Figure 5-28**

By pressing PLAY or PAUSE the user can move forward or backward (respectively) through the logged error codes. The highlighted number indicates which errorcode is currently on display (in the example above, errorcode number 4 is displayed). If "0000" is displayed at all positions, the error log is empty. Display of the logged errors is done in a cyclic manner. The errorcode with the lowest highlighted number is the most recent. By pressing NEXT on the local keyboard, the user can proceed to the next test.

### 5.5.10 ERROR BITS (see table on page 27)

Reading the error bits is done by nucleus LogReadBits. The display during the errorbits readout looks as follows:

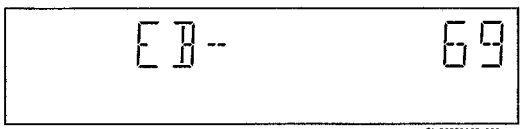


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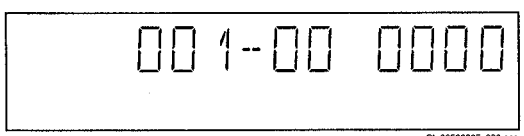
**Figure 5-29**

Only the set errorbits will be shown by their (decimal) number. Refer to the appropriate documentation for the explanation of each bit number. If the display only shows "EB-0", no error bits were set. By pressing NEXT the user can continue to the next test.

## 5.6 LOOP TEST (see table below)

At the start of the loop test, the display will show the result of the interactive player test:




CL 96532065_030.eps 120799

**Figure 5-30**

The left side of the display contains a 3-digit code, which can have a value between 000 and 111. These values are to be interpreted as follows:

| Displayed Value | Indication for each module | | |
|---|---|---|---|
| | Basic Engine | Mono PCB | Display PCB |
| 000 | ok | ok | ok |
| 001 | ok | ok | faulty |
| 010 | ok | faulty | ok |
| 011 | ok | faulty | faulty |
| 100 | faulty | ok | ok |
| 101 | faulty | ok | faulty |
| 110 | faulty | faulty | ok |
| 111 | faulty | faulty | faulty |

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**Figure 5-31**

The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely. The display of the DVD player will display not only the three digits indicating correct/faulty modules and the last found error code (as mentioned, faults are detected as far as they can be within the scope of the diagnostic software), but also a loop counter indicating how many times the loop has been gone through. Example:

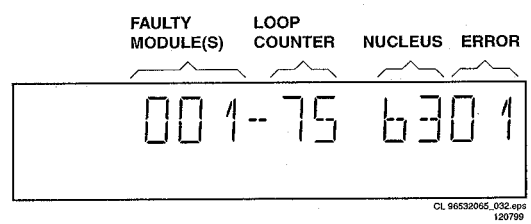


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**Figure 5-32**

The number after the hyphen indicates the number of times the loop test has been performed; the 4 digits at the right side of the display show the last error that was found when running the loop test: the leftmost two digits of this code indicate which nucleus resulted in a fault; the rightmost two digits refer to the faultcode within that nucleus. For further explanation of this error code, see list of error codes below.

### ERROR CODES LOOP TEST

| ERROR CODE | NUCLEUS NUMBER | ERROR DESCRIPTION |
|---|---|---|
| ***0601*** | 6 | Calculated checksum of FLASH is not correct |
| ***1101*** | 11 | I2C bus busy before start |
| ***1102*** | | NVRAM access time-out |
| ***1103*** | | No NVRAM Acknowledge |
| ***1104*** | | NVRAM reply time-out |
| ***1201*** | 12 | I2C bus busy |
| ***1202*** | | I2C bus not working |
| ***1203*** | | Slave controller not responding |
| ***1204*** | | Slave response is not correct |
| ***1301*** | 13 | Parity error from basic engine to serial |
| ***1302*** | | Parity error from serial to basic engine |
| ***1303*** | | No communication between serial and basic engine |
| ***1304*** | | Communication time-out error |
| ***1601*** | 16 | The SDRAM is faulty |
| ***5201*** | 52 | I2C bus busy |
| ***5202*** | | Error sending I2C command to COLOR SETUP IC |
| ***5203*** | | Colour setup IC not responding |
| ***5204*** | | Colour setup IC response is not correct |
| ***5401*** | 54 | I2C bus busy |
| ***5402*** | | Error sending I2C command to SCART SWITCH IC |
| ***5403*** | | SCART Switch is not responding |
| ***5403*** | | SCART Switch response is not correct |

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**Figure 5-33**

| Error log / bits table | Read ERROR LOG in player script | Read ERROR BITS in player script |
|---|---|---|
| Basic engine errors | Value: | Value: |
| Command to the Basic Engine not allowed in this state or unknown command | 150101 | 8 |
| Parameter(s) from the command to the Basic Engine is not valid | 150102 | 7 |
| Sledge could not be moved to the inner home position | 150103 | 6 |
| Focus failure | 150104 | 5 |
| Turntable motor speed could not be reached within timeout | 150105 | 4 |
| Radial servo could not get on track on the disc | 150106 | 3 |
| PLL could not lock in the accessing or tracking state | 150107 | 2 |
| Subcode or sector information could not be read | 150108 | 1 |
| requested subcode could not be found | 150109 | 16 |
| Tray could not be closed or opened completely | 15010A | 15 |
| TOC could not be read within timeout | 15010B | 14 |
| The requested seek on the disc could not be executed | 15010C | 13 |
| A requested lead-in is not on the disc | 15010D | 12 |
| A non existing burst cutting area is requested | 15010E | 11 |
| S2b communication error | 1501F0 | 10 |
| S2b communication error | 1501F1 | 9 |
| S2b communication error | 1501F3 | 24 |
| S2b communication error | 1501F4 | 23 |
| S2b communication error | 1501F5 | 22 |
| Digital PWB errors | | |
| Communication error with the Sti 5505 | 90000 | 32 |
| Communication error with the Sti 5505 | 90001 | 31 |
| Disply processor errors | | |
| Communication error with the display processor | 190000 | 40 |

### 5.6.1 Servicing DVD loader

The DVD Loader / mechanism, VAL6011, has to be exchanged completely in case of failure. A new mechanism can be ordered with codenumber 9305 023 61101.

### 5.6.2 Reprogramming of new mono boards.

***Caution***

***This information is confidential and may not be distributed. Only a qualified service person should reprogram the mono board.***

After reset of NV-memory or repair of the mono board, all the customer settings and also the region code will be lost.
Reprogramming of the mono board will put the player back in the state in which it has left the factory, i.e. with the default settings and the allowed region code.
Reprogramming is limited to 25 times
When the counter reaches 25, reprogramming is not possible anymore
Reprogramming will be done by way of the remote control.
Put the player in stop mode, no disc loaded.
Press the following keys on the remote control:
<***PLAY***> followed by numerical keys <*1*> <*5*> <*9*>
The display shows: "- - - - - - - - - -"
Press now successively the following keys :

for DVD756/002 : <*0*><*5*><*4*> <*0*><*0*><*0*><*0*><*0*><*0*><*0*><*0*><*0*><*0*>

Press <***PLAY***> again.
The TV screen will become BLUE during a short time to confirm that the mono board has been reprogrammed, then the set goes to standby mode.

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**Figure 5-34**

### 5.6.3 Reset of Virgin Mode

After the player has been powered up for test by the dealer, it would have gone through the Virgin Mode. It is possible to reset the settings made during that mode before the delivery of player to the customer. This can be done as shown in the following diagram:

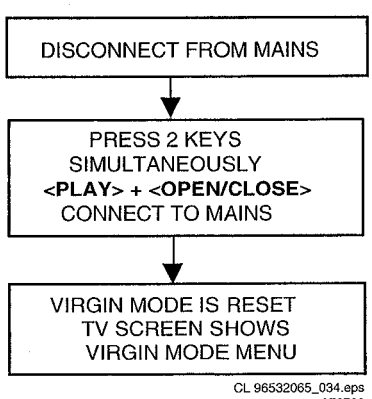



**Figure 5-35**

***TRADE MODE***

***When the player is in Trade Mode, the player cannot be controlled by means of the front key buttons, but only by means of the remote control.***

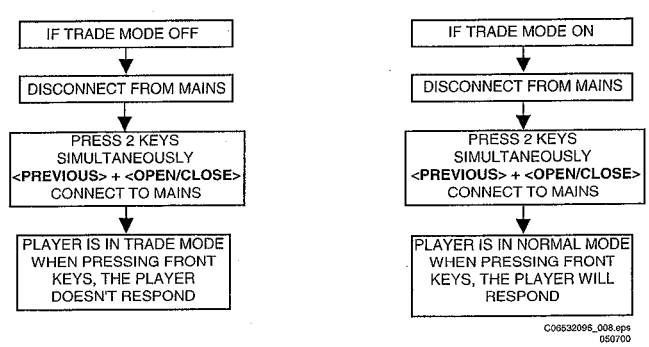



**Figure 5-36**

## 5.7 Test instructions Display board

### 5.7.1 Introduction

These test instructions are written for all versions of the display PCB 3104 123 42230.
The contents of the PCB can be split up into next blocks:

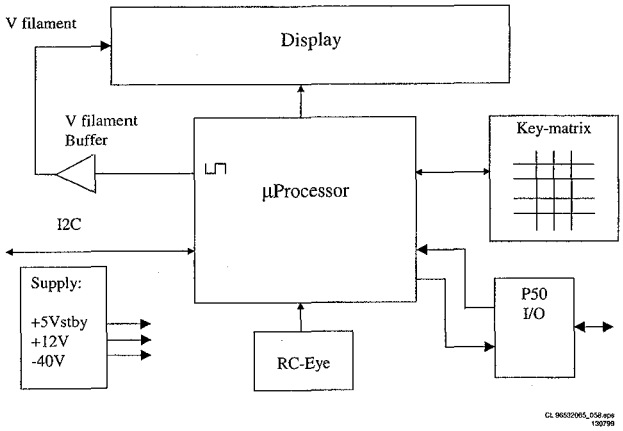



Figure 5-37

### 5.7.2 Functionality description:

The essential component of the display PCB is the µP (slave). This slave works on an 8MHz resonator and has a reset circuit that is triggered by the +5Vstby. After the reset pulse, the standby control line will release the reset of the host µP. This host µP will then initialise the slave. In addition, when going to stand-by, the slave will put the host µP in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host µP will be released.
Other slave functions are:

- Square signal generator to generate the filament voltage, which is required for an AC FTD.
- Generates the grid and segment scanning for the FTD.
- Generates a scanning grid for the keys (separated from display scanning).
- Has inputs for RC (RC5 and RC6) and P50 (P50 controller is built in).

### 5.7.3 General

- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be > 1MΩ.
- To do correct measurements we recommend to use supply 3122 427 21370, which is used in all "second generation B" DVD-players. Make sure that the main 3.3V has a 0.7A load.

### 5.7.4 Reset

Check next reset timing with an oscilloscope at pin 10 of the microprocessor.

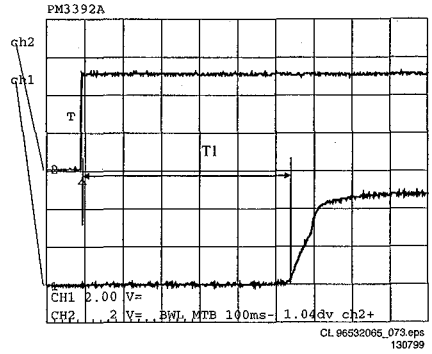



Figure 5-38

Timing: 400msec < T1 > 700msec.
CH1: +5Vstby voltage at power on.
CH2: Voltage at pin 10.

### 5.7.5 Display steering

Check next timing and level for all grid-lines (G1 r G14).

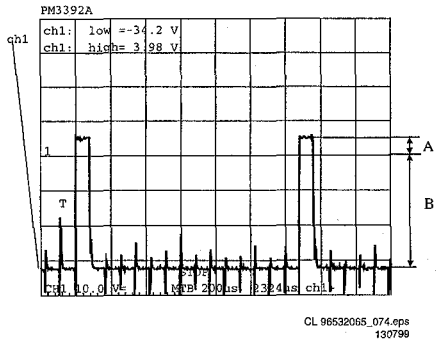



Figure 5-39

1. Check level A: +4V5 +/-10% for grid lines 1 => 11
2. Check level A: +4V0 +/-10% for grid lines 12 => 14
3. Check level B: -33V +/-10%
4. Check timing and levels of segment-lines P1 => P10:

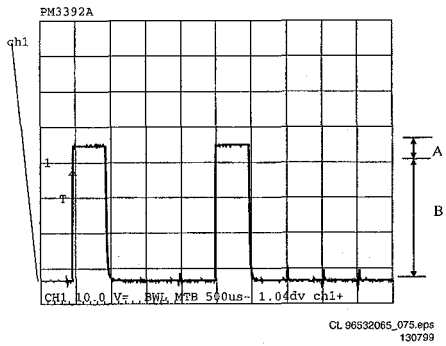



Figure 5-40

Level A:+4V5 +/-10%
Level B:-33V +/-10%
The data on these segment lines depend on the characters that are displayed.
The characters can be set by sending I2C commands to the display.

See the Slave URS how to send a display command.

### 5.7.6 Key-matrix

Connect a extra 10kΩ pull-up to pin 36 en 37 of the µP and check next matrix scanning at these pins.

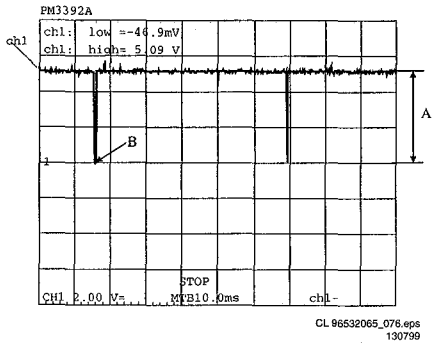



**Figure 5-41**

Level A: 5.0V +/-7%
Level B: 0V +/-200mV
Check matrix scanning from pin 26 until 33 of the µP.
The results should be the same as the diagram above.

### 5.7.7 I.R. receiver

Check at pin 23 of the µP if this line switches from low (< 0.3V) to high (> 4.5V), while pressing a key on a Philips RC5 or RC6 remote control.

### 5.7.8 Karaoke interface

The karaoke interface (4 lines) is a single direction communication.
This means that it consists of four µP output lines.
The interface can be checked by setting or resetting these output-ports via the I2C bus.
Send next command via the I2C bus:

| | |
|---|---|
| Address | : 0x70 |
| Command byte | : 0x24 |
| Data byte | : xxxxabcd |
| Where | : a = Karaoke reset. |
| | : b = Karaoke data. |
| | : c = Karaoke clock. |
| | : d = Karaoke strobe. |

### 5.7.9 P50 interface

P50 is a bi-directional serial interface, which is used for communication between video equipment. For European sets, this communication goes via pin 10 of the scart-bus. In other regions, it can be a cinch bus at the back of the set.

1. Keep the µP in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5: < 200mV.

When the reset is released the µP output-pin becomes low and transistor 7101 is switched off.

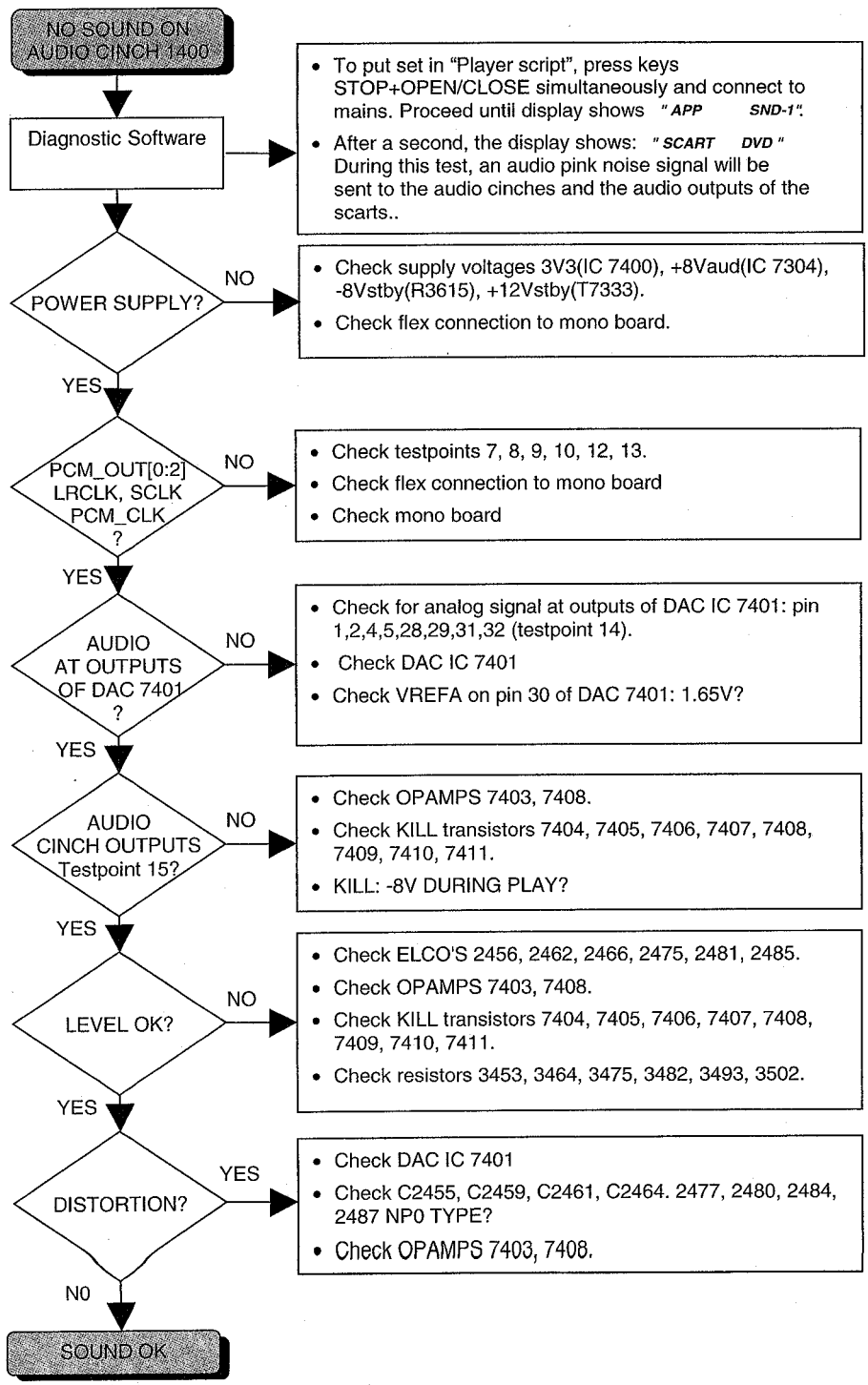
1. Check the voltage at the P50 output connector 1118-5: 4V9 +/-5%.
2. Check also the µP P50 input (µP pin 20): 5V +/-5%.
3. Connect the P50 line (connector 1118-5) to ground.
4. Check again the µP P50 input (µP pin 20): <0V3.

## 5.8 Troubleshooting

# TROUBLESHOOTING A/V BOARD

Testing of A/V board can be done using diagnostic software "Player script".
Mono board is used to generate a sound with the sound tests SND-1 and SND-2 or a VIDEO signal with the picture test PIC-1. Functional control of scart switching and RGB video processing is also possible. See description in chapter "Diagnostic Software: Script Interfaces"

## AUDIO PART

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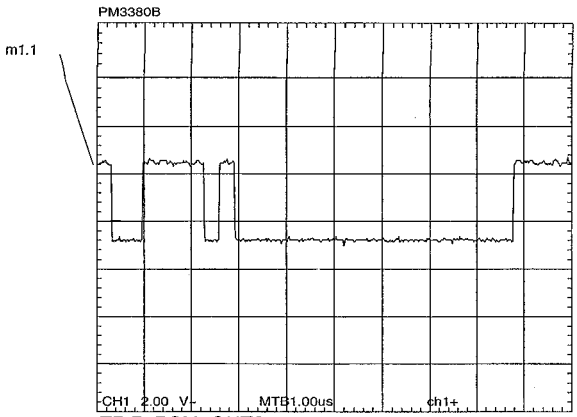
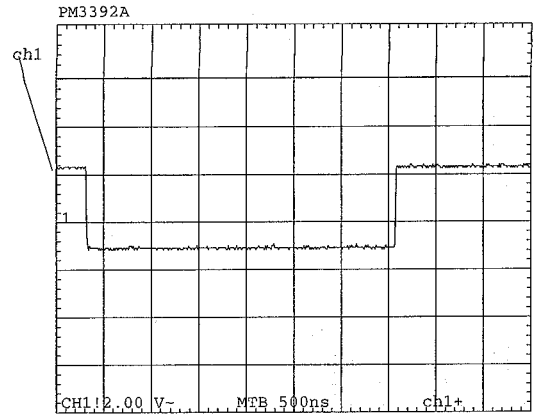
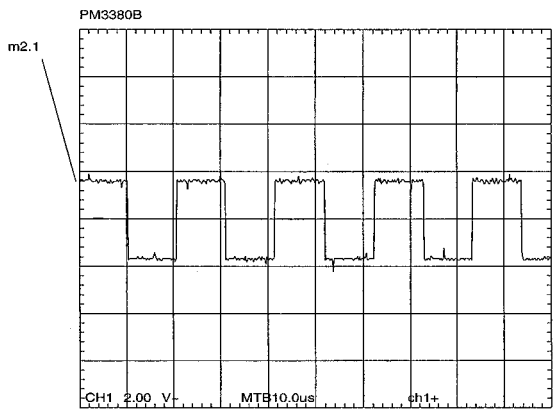
261099



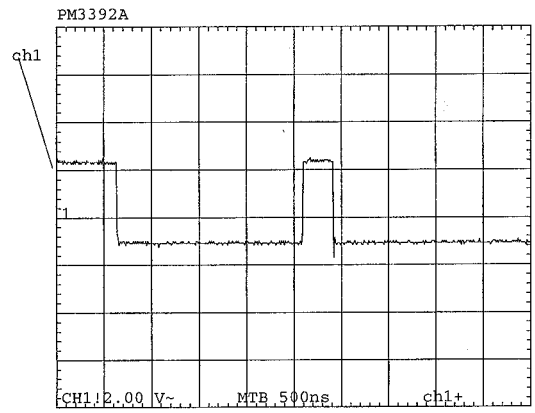

TP 7: PCM_OUT0



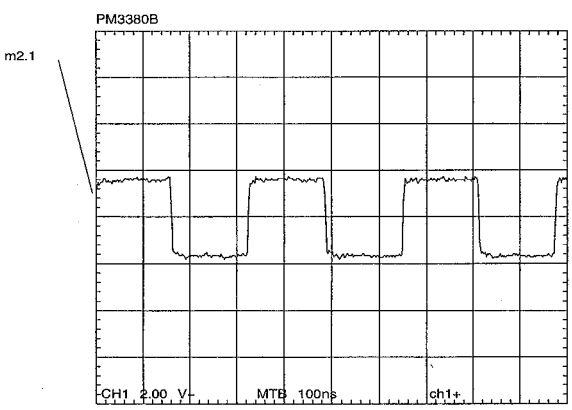

TP12: PCM_OUT2



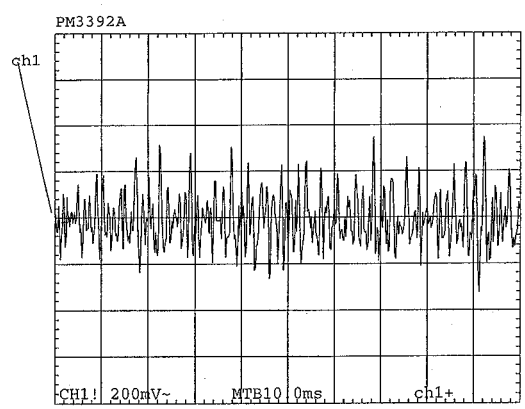

TP8: LRCLK



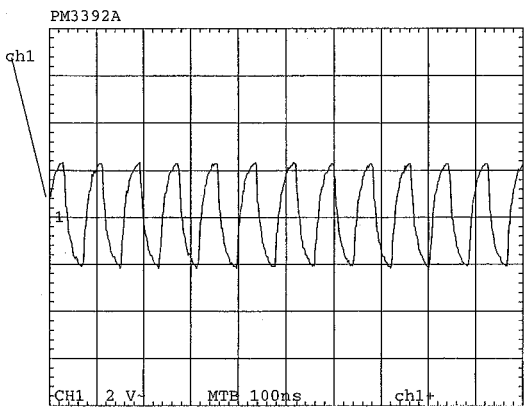

TP13: PCM_OUT1



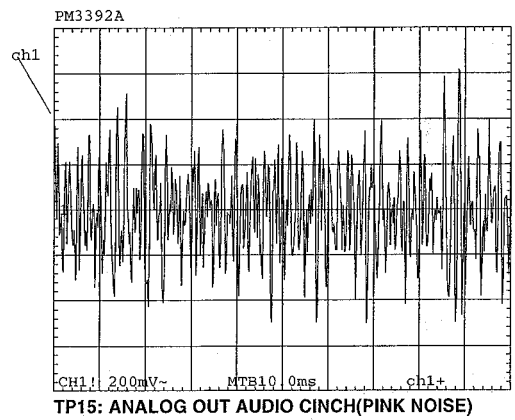

TP9: SCLK




TP14: ANALOG OUT DAC (PINK NOISE)




TP10: PCM_CLK




**TP15: ANALOG OUT AUDIO CINCH(PINK NOISE)**

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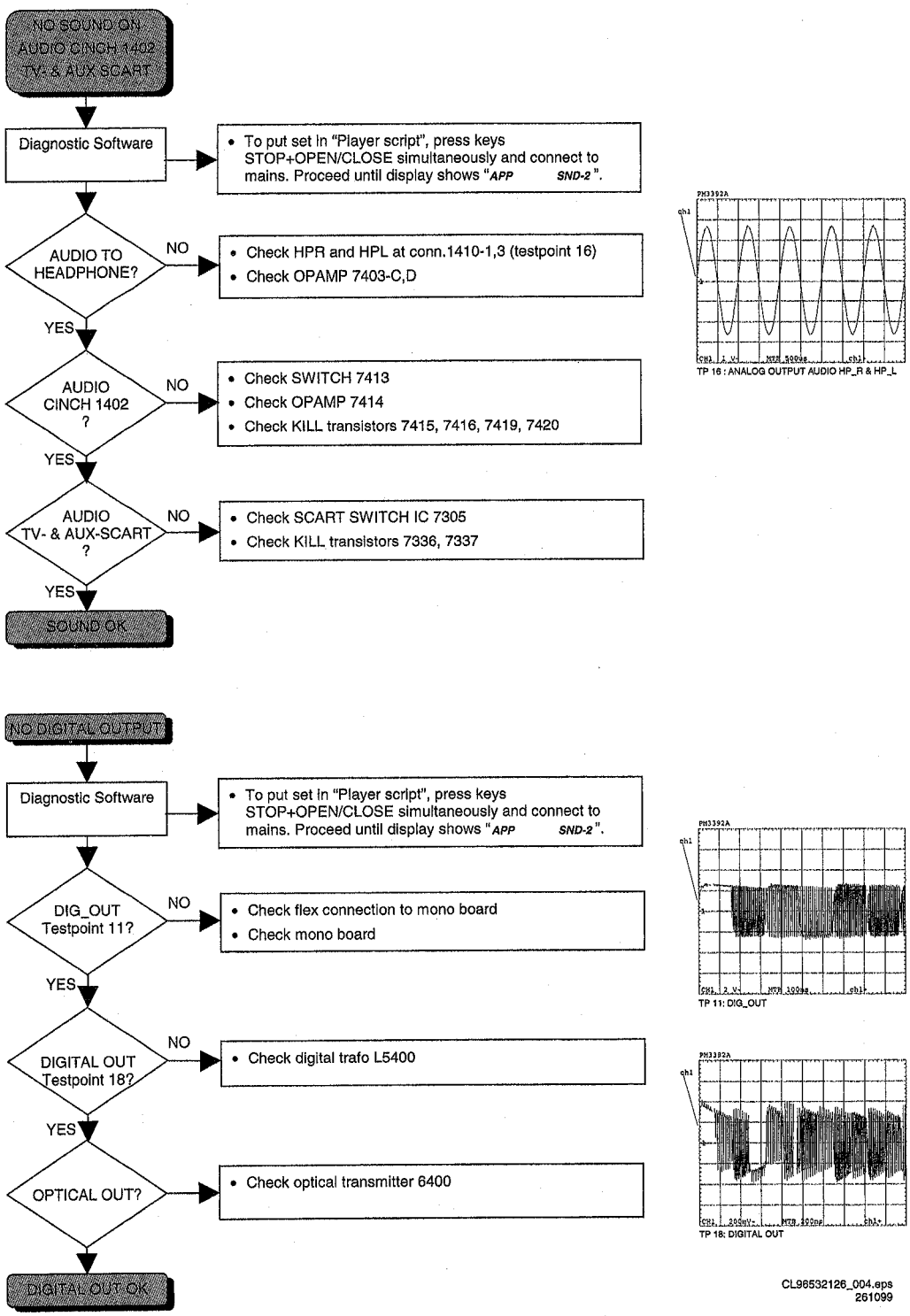
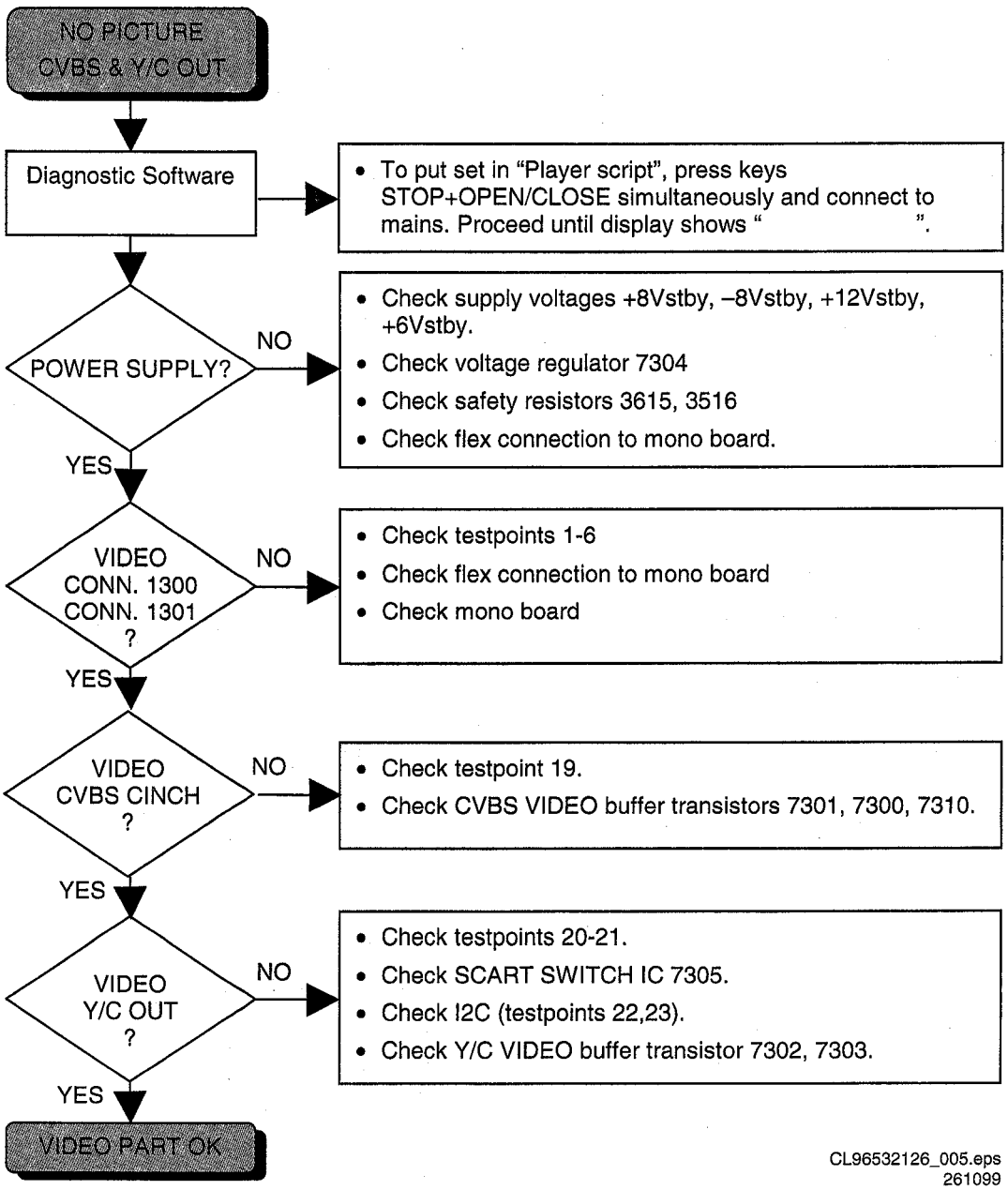
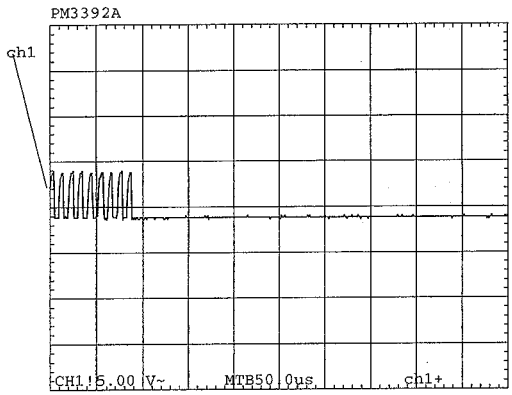
060700


NO SOUND ON AUDIO CINCH 1402 TV- & AUX SCART
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows "APP SND-2".
AUDIO TO HEADPHONE?
NO
• Check HPR and HPL at conn.1410-1,3 (testpoint 16)
• Check OPAMP 7403-C,D
YES
AUDIO CINCH 1402 ?
NO
• Check SWITCH 7413
• Check OPAMP 7414
• Check KILL transistors 7415, 7416, 7419, 7420
YES
AUDIO TV- & AUX-SCART ?
NO
• Check SCART SWITCH IC 7305
• Check KILL transistors 7336, 7337
YES
SOUND OK
TP 16 : ANALOG OUTPUT AUDIO HP_R & HP_L
NO DIGITAL OUTPUT
Diagnostic Software
• To put set in "Player script", press keys STOP+OPEN/CLOSE simultaneously and connect to mains. Proceed until display shows "APP SND-2".
DIG_OUT Testpoint 11?
NO
• Check flex connection to mono board
• Check mono board
YES
DIGITAL OUT Testpoint 18?
NO
• Check digital trafo L5400
YES
OPTICAL OUT?
• Check optical transmitter 6400
DIGITAL OUT OK
TP 11: DIG_OUT
TP 18: DIGITAL OUT
CL98532126_004.eps
261099

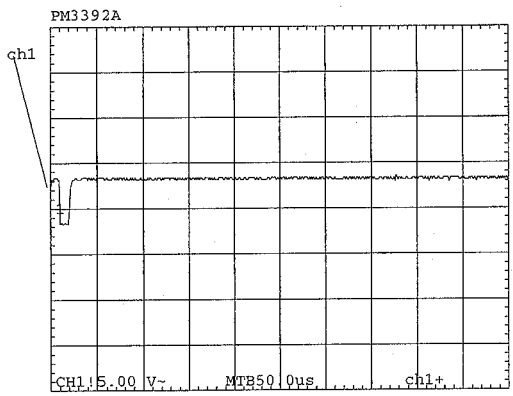
# VIDEO PART



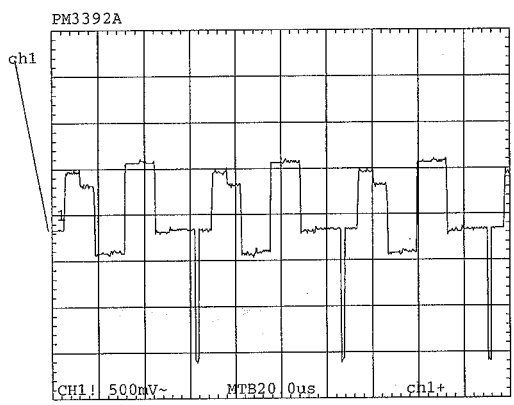

CL96532126_005.eps
261099



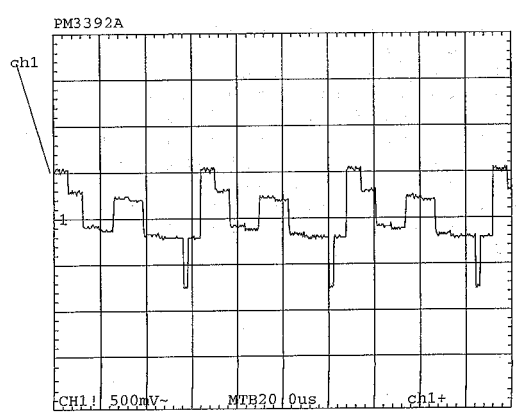
TP22: SCL(I2C)



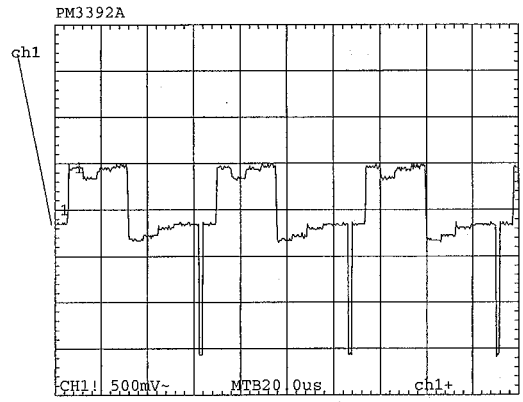
TP23: SDA(I2C)



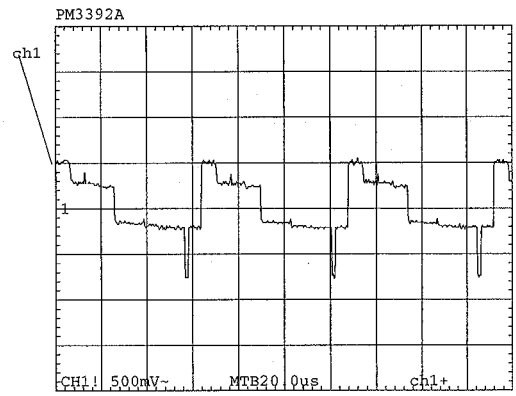
TP25: RO (COLOURSETUP HI)



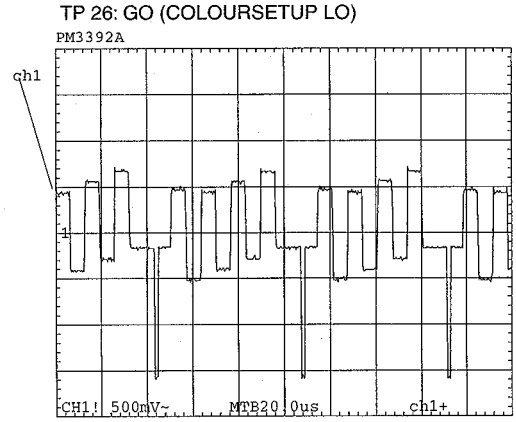
TP25: RO (COLOURSETUP LO)



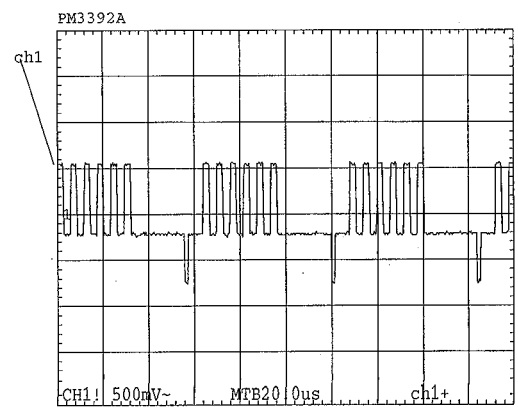
TP26: GO (COLOURSETUP HI)



TP 26: GO (COLOURSETUP LO)



TP27: BO (COLOURSETUP HI)



TP27: BO (COLOURSETUP LO)

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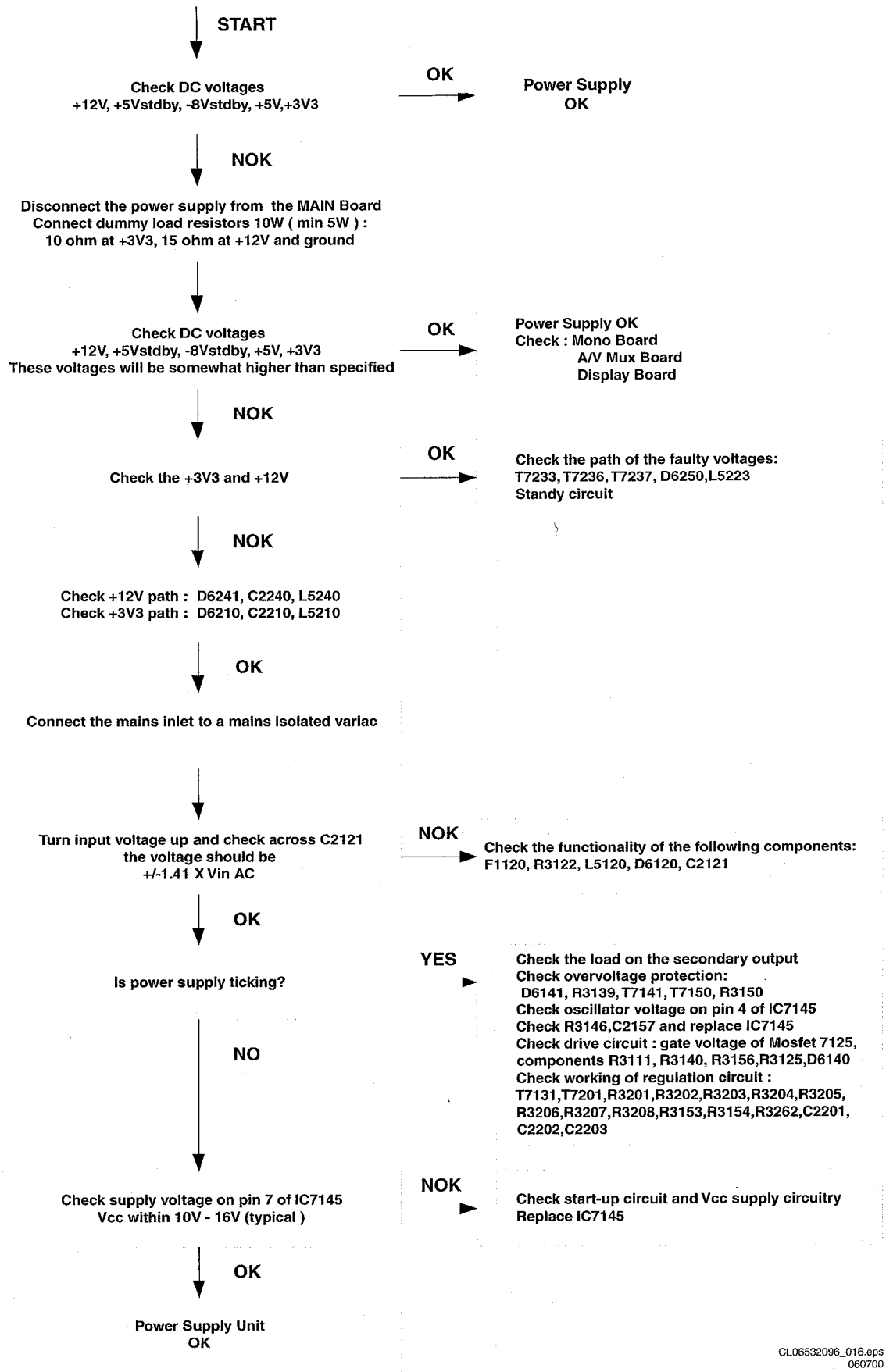
261099

# TROUBLESHOOTING POWER SUPPLY UNIT 20PS223

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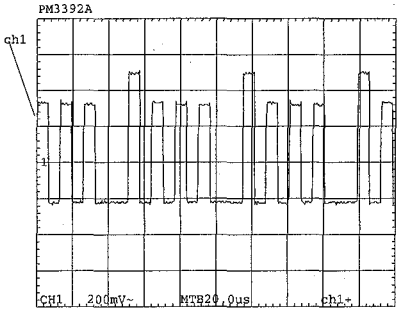
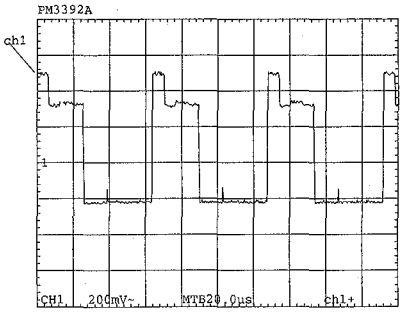
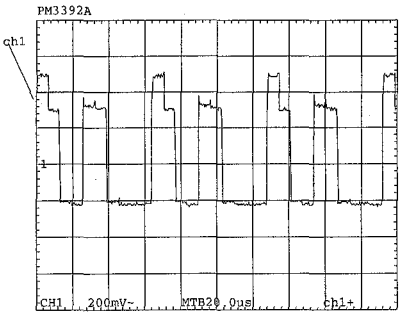
060700



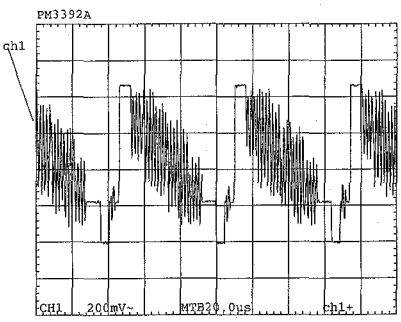
TP 1 : video B



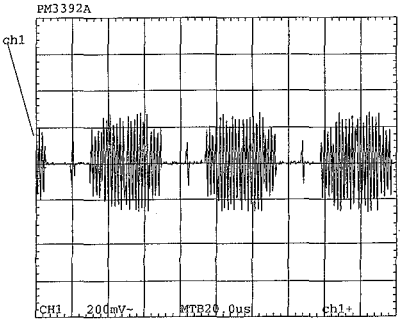
TP 2 : video G



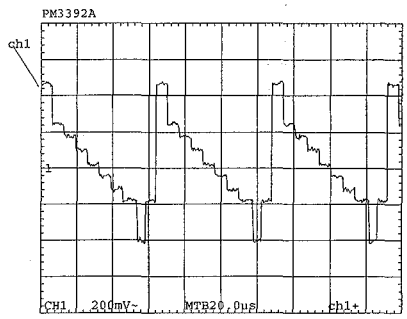
TP 3 : video R



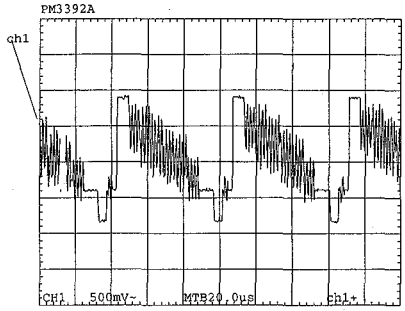
TP 4 : CVBS



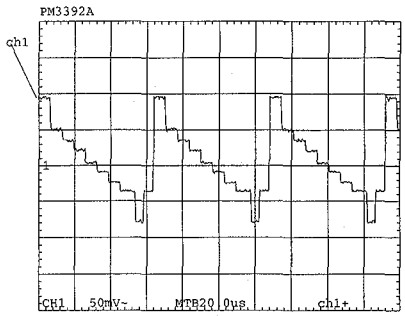
TP 5 : C_ENC



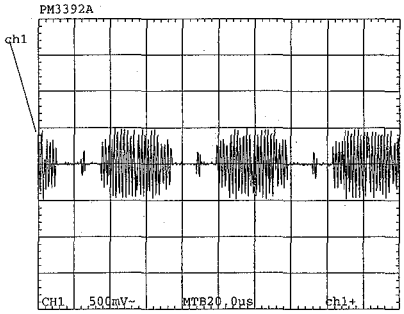
TP 6 : Y_ENC



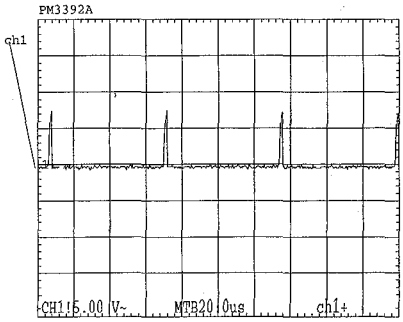
TP 19 : CVBS_OUT



TP20: Y_OUT

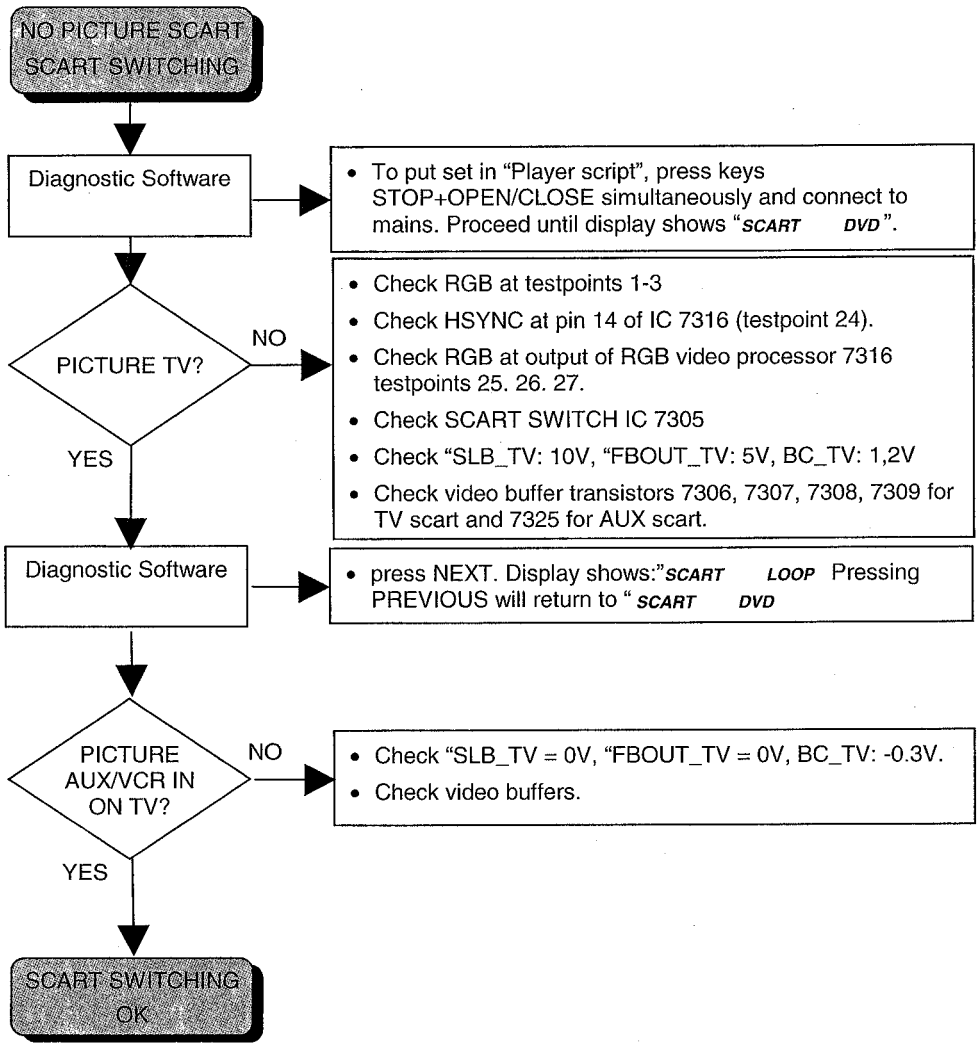


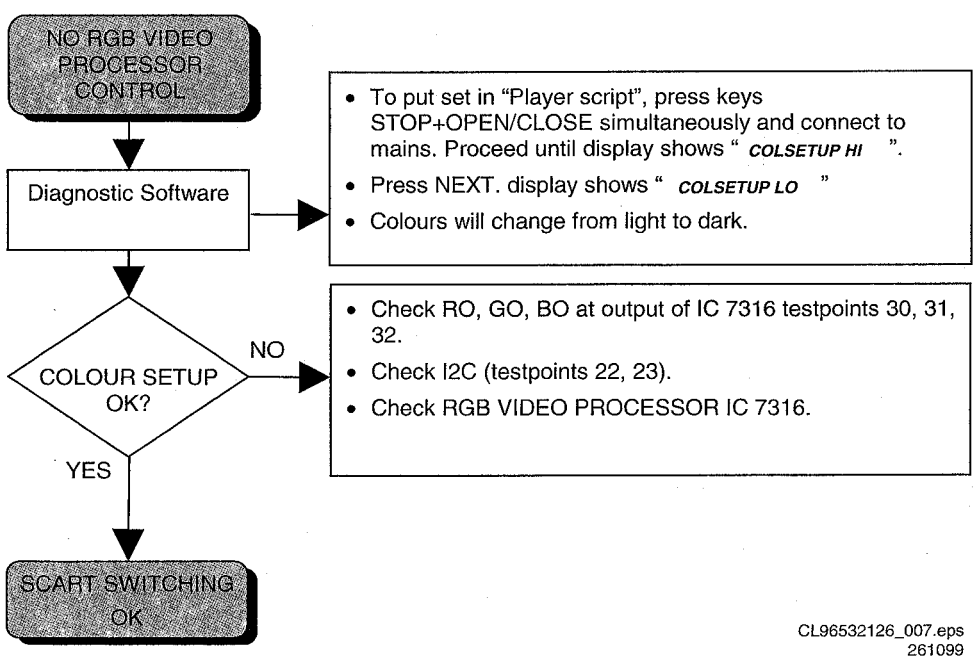
TP 21: C_OUT



TP24: HSYNC

CL96532126_006.eps
261099

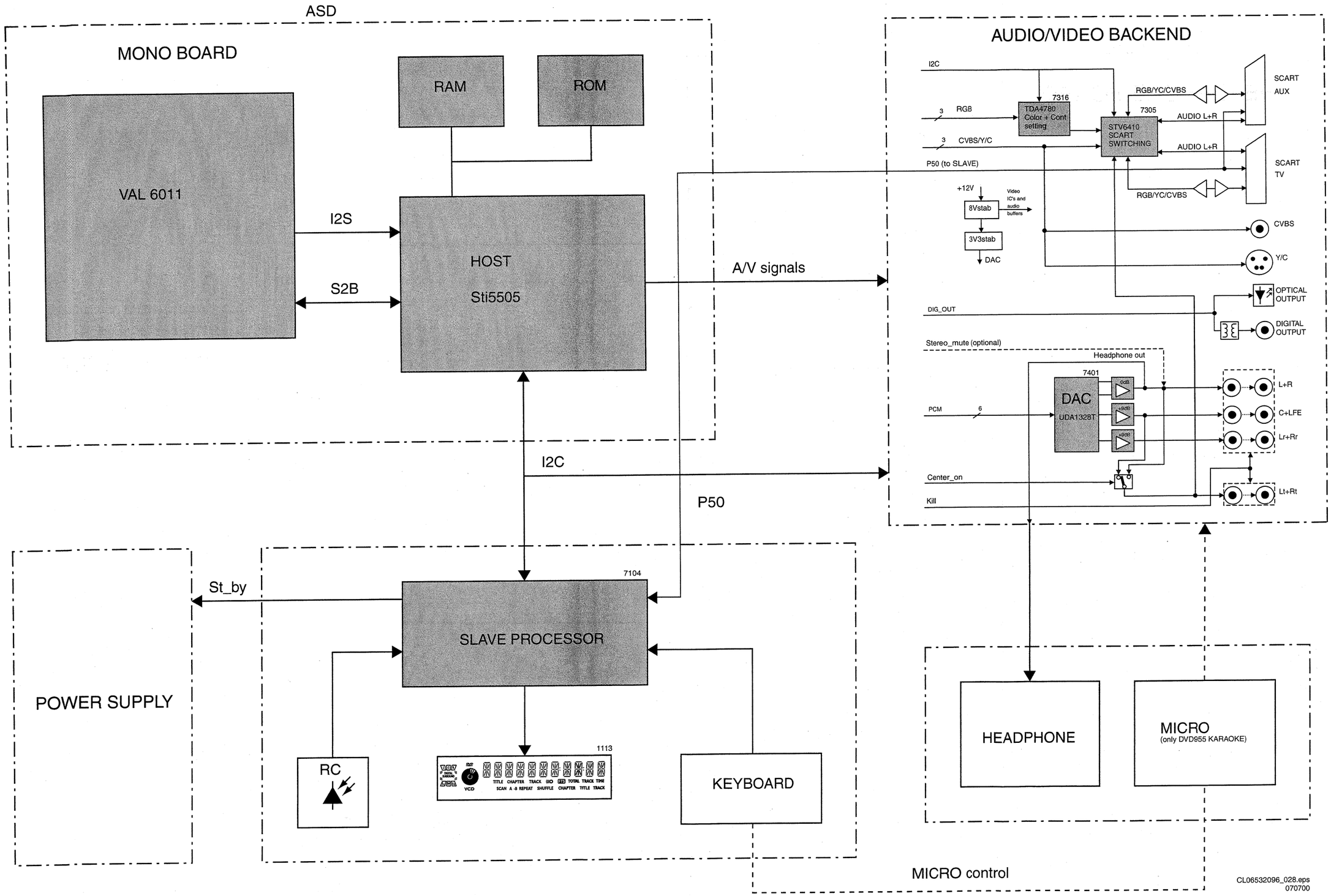


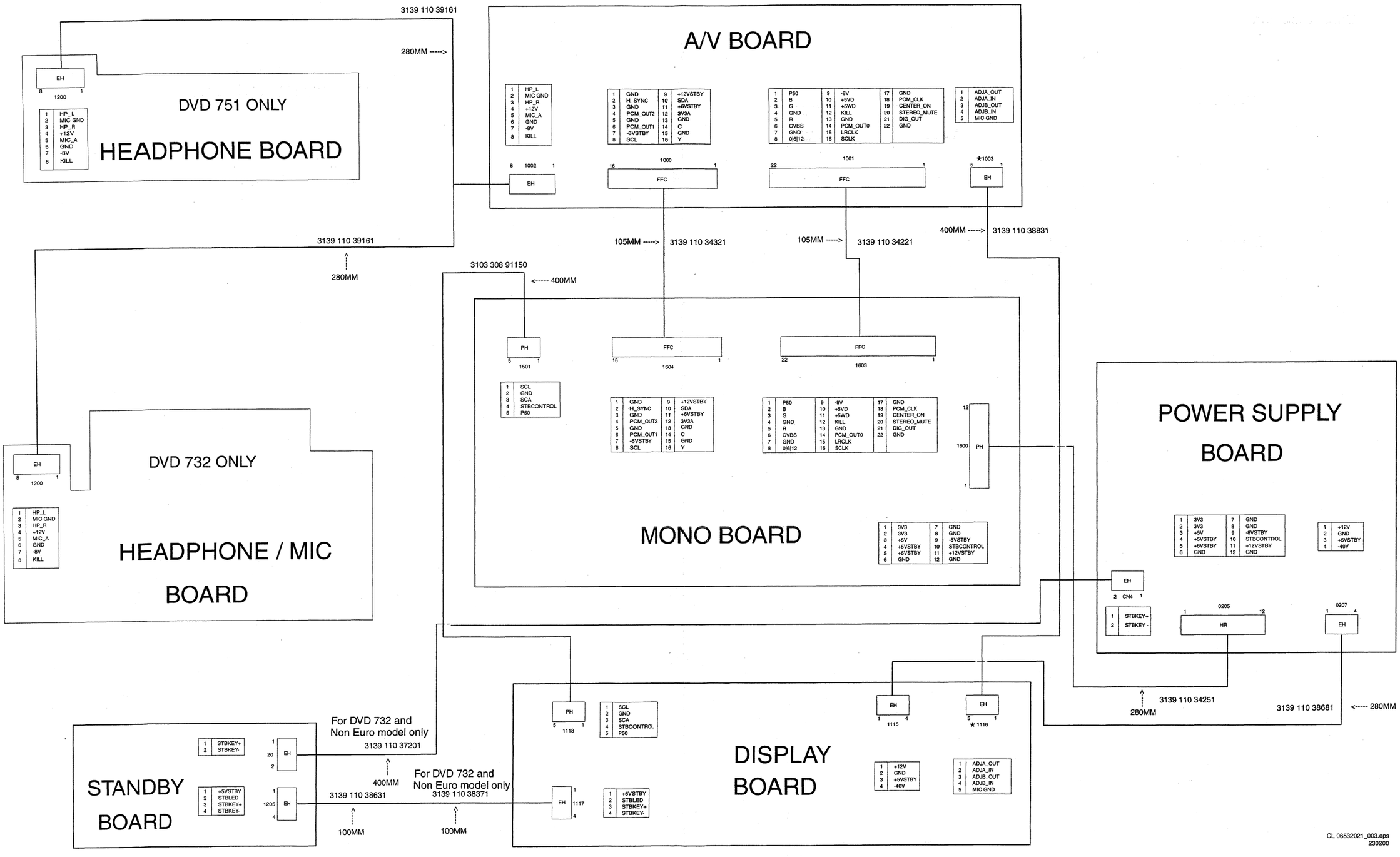

CL96532126_007.eps
261099

# 6. Block- and wiringdiagram.

## Blockdiagram

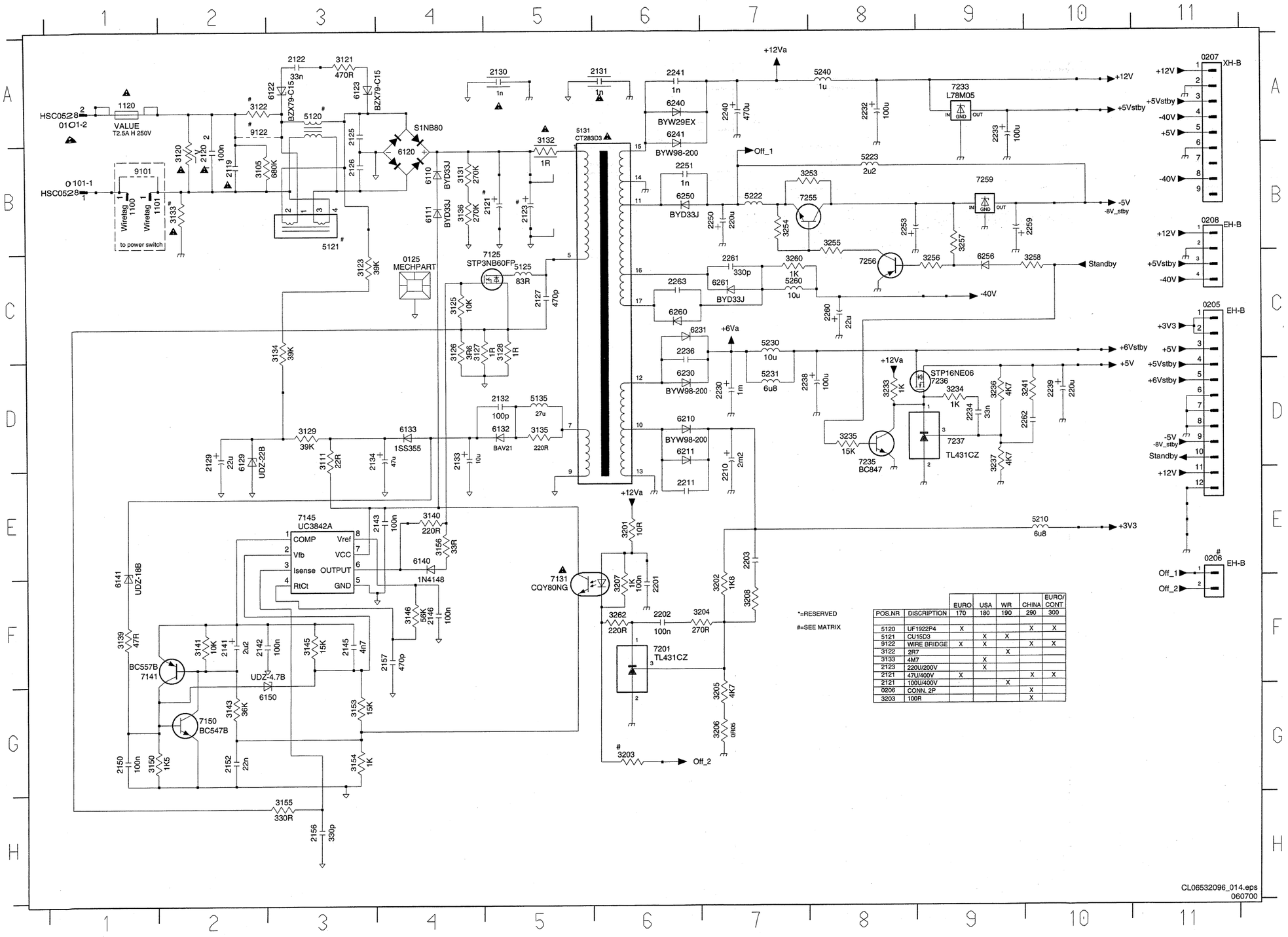


## Wiringdiagram



# 7. Electrical diagrams and Print-layouts

## Power supply 20PS223

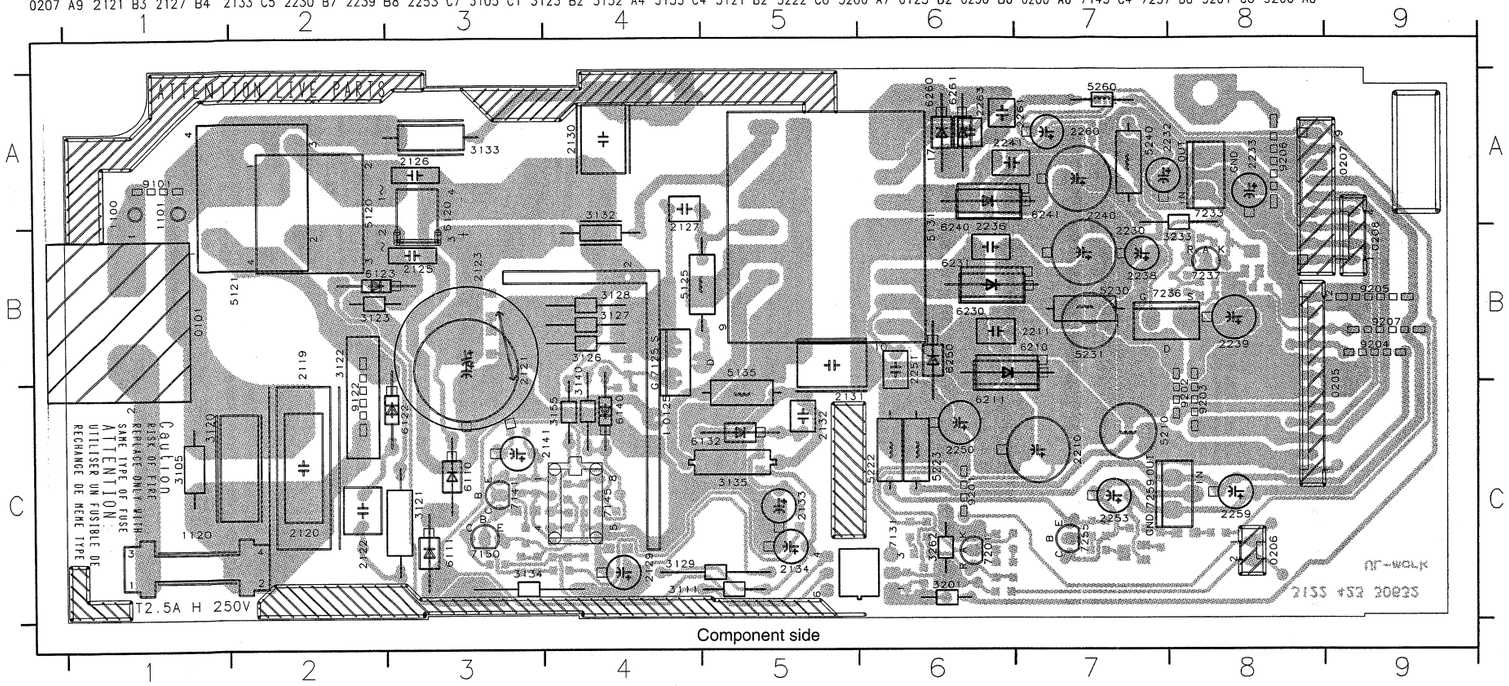



| POS.NR | DISCRIPTION | EURO 170 | USA 180 | WR 190 | CHINA 290 | EURO/ CONT 300 |
|---|---|---|---|---|---|---|
| 5120 | UF1922P4 | X | | | X | X |
| 5121 | CU15D3 | | X | X | | |
| 9122 | WIRE BRIDGE | X | X | | X | X |
| 3122 | 2R7 | | | X | | |
| 3133 | 4M7 | | X | | | |
| 2123 | 220U/200V | | X | | | |
| 2121 | 47U/400V | X | | | X | X |
| 2121 | 100U/400V | | | X | | |
| 0206 | CONN. 2P | | | | X | |
| 3203 | 100R | | | | X | |

0101-1 B1
0101-2 A1
0125 C4
0205 C11
0206 E11
0207 A11
0208 B11
1100 B1
1101 B1
1120 A1
2119 B2
2120 B2
2121 B3
2122 A3
2123 B3
2125 A3
2126 B3
2129 D3
2130 C3
2131 D3
2132 D3
2133 D3
2134 D3
2141 E3
2142 E3
2143 E3
2145 E3
2146 E3
2150 G3
2152 G3
2156 H3
2157 F4
2201 F6
2202 F6
2203 E7
2210 E7
2211 E6
2230 D7
2232 A8
2233 A9
2234 D9
2236 C6
2238 D7
2239 D10
2240 A7
2241 A6
2250 B7
2251 B6
2253 B8
2259 B10
2260 C8
2261 C7
2262 D10
2263 C6
3105 B2
3111 D3
3120 B2
3121 A3
3122 A2
3123 C3
3125 C4
3126 C4
3127 C4
3128 C5
3129 D3
3131 B4
3132 A5
3133 B2
3134 C3
3135 D5
3136 B4
3139 F1
3140 E4
3141 F2
3143 G2
3145 F3
3146 F4
3150 G1
3153 G3
3154 G3
3155 H3
3156 E4
3201 E6
3202 F7
3203 G6
3204 F6
3205 G7
3206 G7
3207 F6
3208 F7
3233 D8
3234 D9
3235 D8
3236 D9
3237 D9
3241 D10
3253 B8
3254 B7
3255 B8
3256 C9
3257 B9
3258 C10
3260 C7
3262 B7
5135 D5
5210 E10
5222 B7
5223 B8
5230 C7
5231 D7
5240 A8
5260 C7
6110 B4
6111 B4
6120 B3
6122 A3
6123 A3
6129 D3
6132 A3
6133 D4
6135 D5
6140 E1
6141 E1
6150 G2
6210 D6
6211 D6
6230 D6
6231 C6
6240 A6
6241 A6
6250 B6
6256 C9
6260 C7
6261 C7
7125 C5
7131 F5
7141 F1
7145 E3
7150 G2
7201 F6
7233 A9
7235 D8
7236 D9
7237 D9
7255 B7
7256 C8
7259 B9
9101 B1
9122 A2

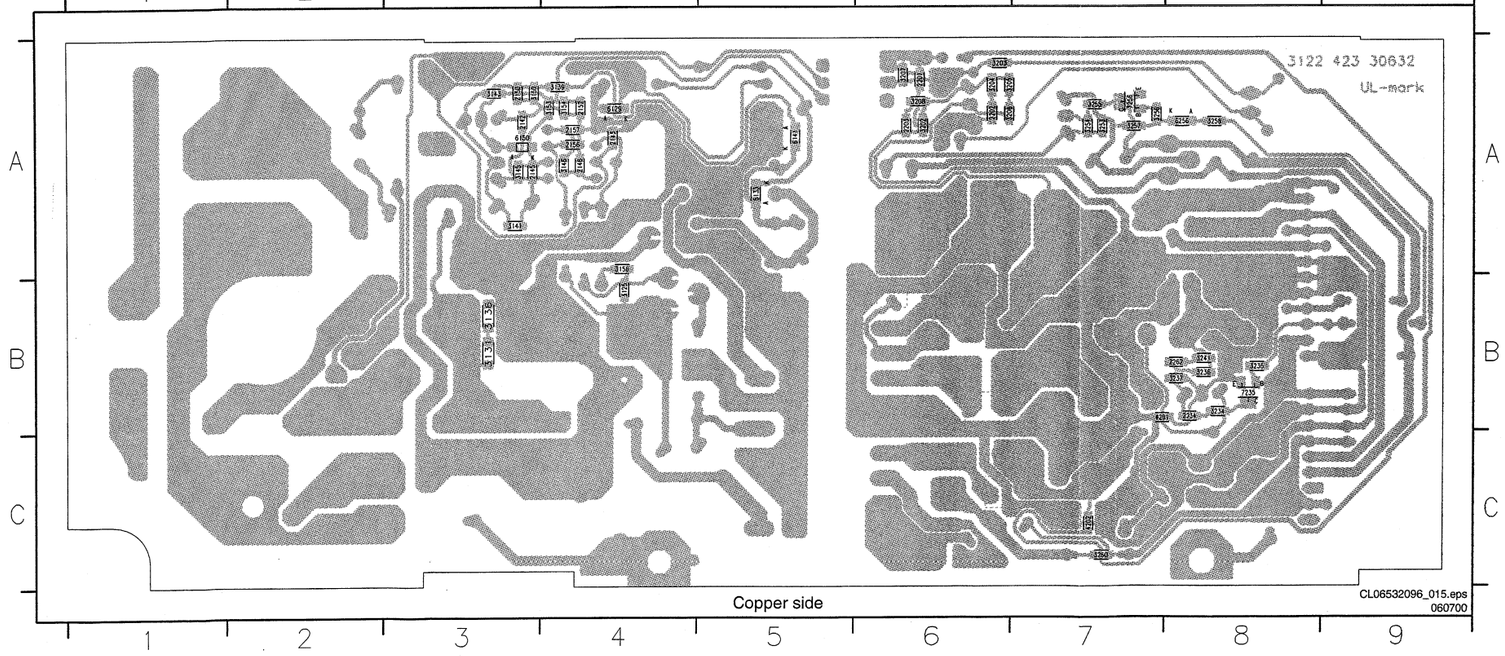
## Power supply 20PS223

0101 B1 0208 B9 2122 C2 2129 C4 2134 C5 2232 A7 2240 A7 2259 C8 3111 C4 3126 B4 3133 A3 3201 C6 5125 B4 5223 C6 6110 C3 6132 C5 6231 B6 6261 A6 7150 C3 7255 C7 9202 C8 9207 B9
0125 C4 1120 C1 2123 B3 2130 A4 2141 C4 2233 A8 2241 A6 2260 A7 3120 C1 3127 B4 3134 C3 3233 B8 5131 B6 5230 B7 6111 C3 6140 C4 6240 B6 7125 B4 7201 C6 7259 C7 9203 C8
0205 C9 2119 B2 2125 B3 2131 C5 2210 C7 2236 B6 2250 C6 2261 A7 3121 C3 3128 B4 3135 C5 3262 C6 5135 B5 5231 B7 6120 A3 6210 B7 6241 A7 7131 C6 7233 A8 9101 A1 9204 B9
0206 C8 2120 C2 2126 A3 2132 C5 2211 B7 2238 B7 2251 B6 2263 A6 3122 B2 3129 C4 3140 B4 5120 A2 5210 C7 5240 A7 6122 C3 6211 C6 6250 B6 7141 C3 7236 B7 9122 C2 9205 B9
0207 A9 2121 B3 2127 B4 2133 C5 2230 B7 2239 B8 2253 C7 3105 C1 3123 B2 3132 A4 3155 C4 5121 B2 5222 C6 5260 A7 6123 B2 6230 B6 6260 A6 7145 C4 7237 B8 9201 C6 9206 A8




Component side

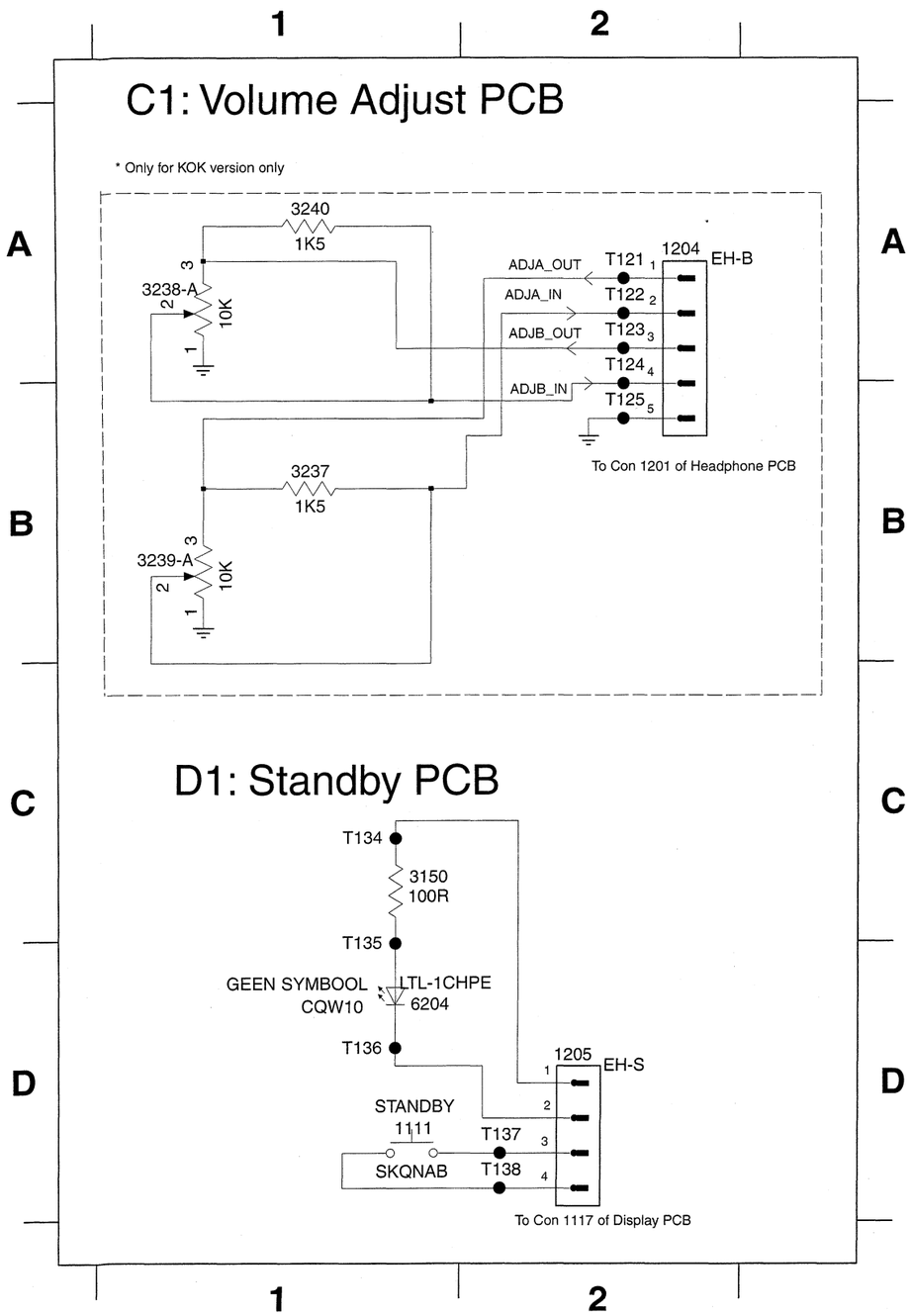
2142 A3 2146 A4 2156 A4 2202 A6 2262 B8 3136 B3 3143 A3 3150 A3 3156 A4 3204 A6 3207 A6 3235 B8 3241 B8 3255 A7 3258 A8 4202 C7 6141 A5 7235 B8
2143 A4 2150 A3 2157 A4 2203 A6 3125 B4 3139 A4 3145 A3 3153 A4 3202 A6 3205 A6 3208 A6 3236 B8 3253 A7 3256 A7 3260 C7 6129 A4 6150 A3 7256 A7
2145 A3 2152 A4 2201 A6 2234 B8 3131 B3 3141 A3 3146 A4 3154 A4 3203 A6 3206 A6 3234 B8 3237 B8 3254 A7 3257 A7 4201 B7 6133 A5 6256 A8



Copper side

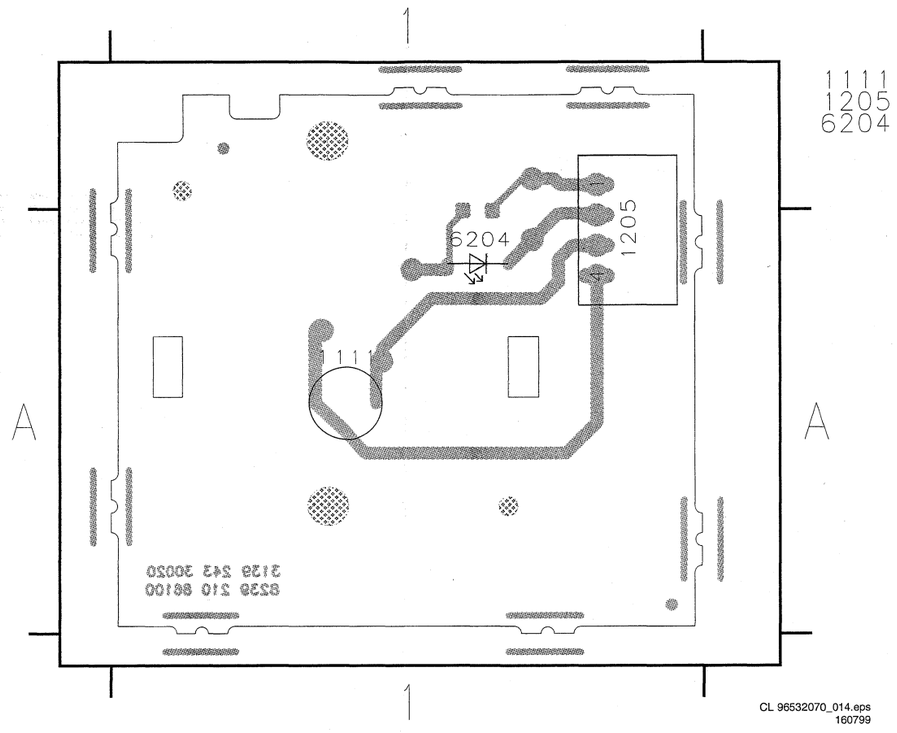
CL06532096_015.eps
060700

## Volume / Standby PWB




CL 96532070_018.eps
160799

1111 D1
1204 A2
1205 D2
3150 C1
3237 B1
3238-A A1
3239-A B1
3240 A1
6204 D1
T121 A2
T122 A2
T123 A2
T124 A2
T125 B2
T134 C1
T135 D1
T136 D1
T137 D2
T138 D2




CL 96532070_014.eps
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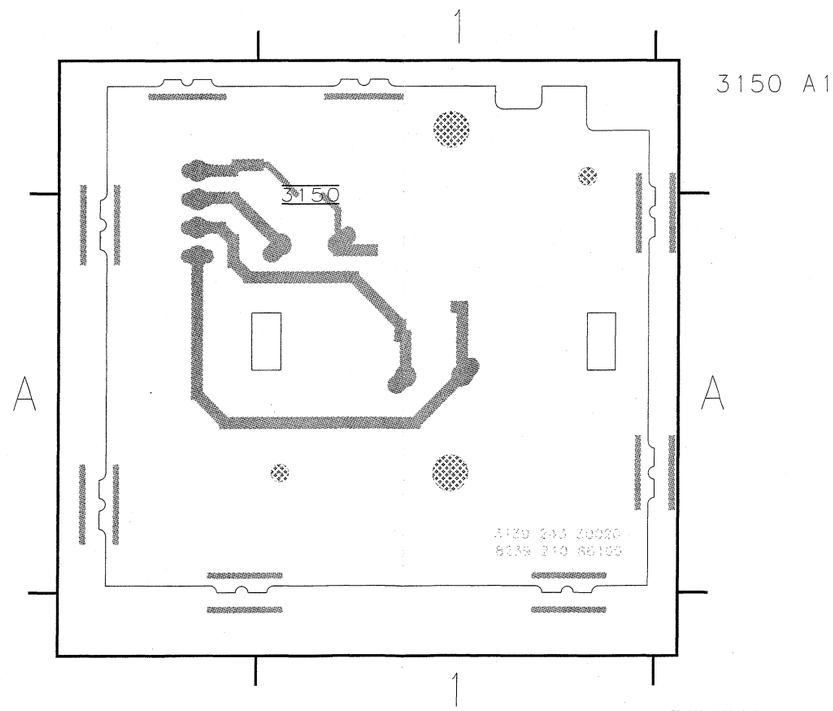



CL 96532070_015.eps
160799

## Display

# A1 : FRONT DISPLAY PCB

For models with P50 only

For DVD732 only

For DVD 751 only

OPTION

8-Bit h.break. v. out w. latch P8

8-Bit high breakdown voltage output part ewith latch P7

8-Bit high breakdown v. output port with latch P6

8-Bit h. breakdown v. out port w. latch P9

5-Bit h. breakd. v. out w. latch PD

VFT driver circuit (automatic display)

RAM ROM Program Counter CPU

8-Bit A/D Converter

4-Bit In/Output (tri-state) P5

8-Bit Input/Output (tri-state) P4

8-Bit Input/Output (tri-state) P0

3-Bit In/Output with latch P2

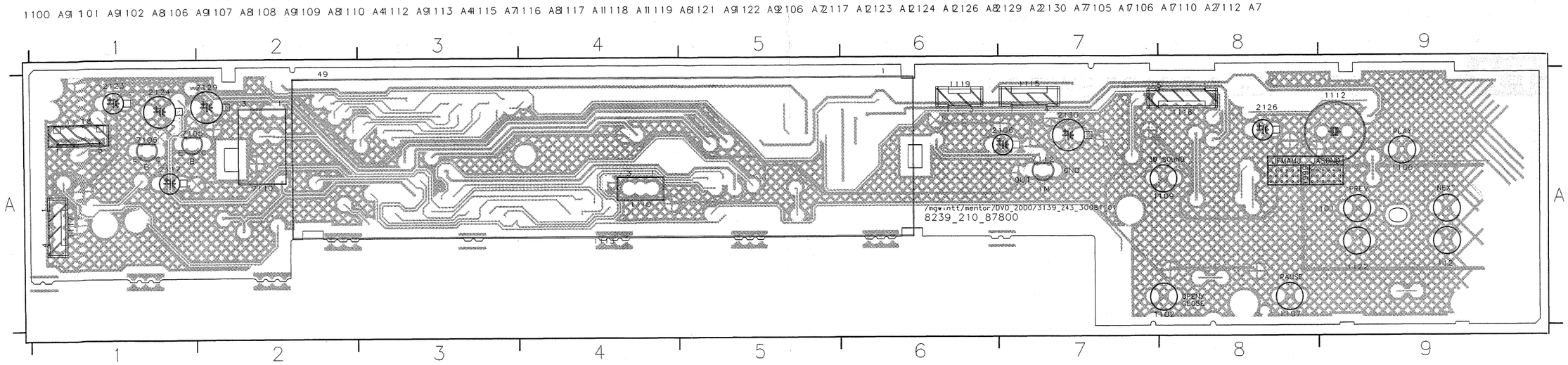
3-B. I/O P3 sink o.drain

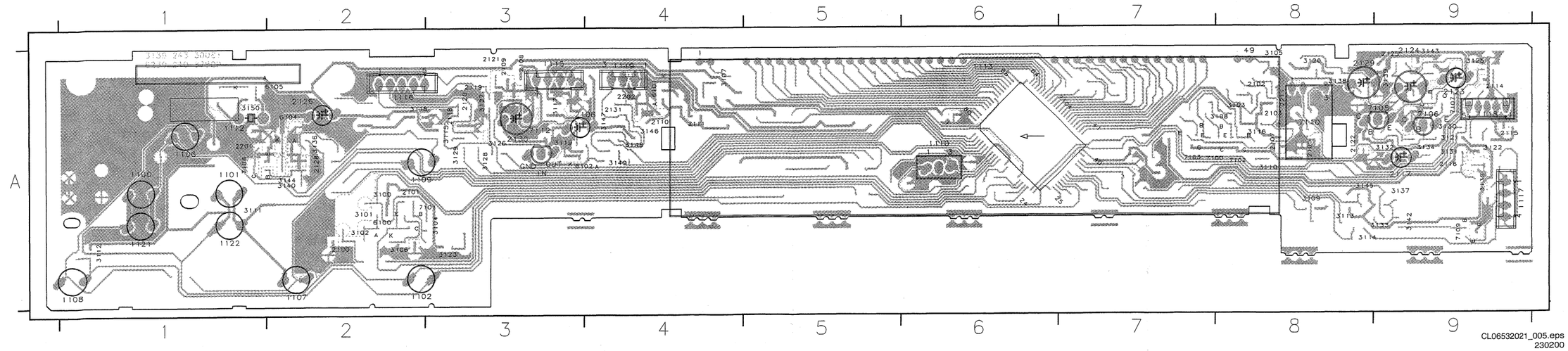
P50 interface to scart

INFO : FIL2-FIL1=4.8Vac-RMS

CL06532021_004.EPS 230200

## Display PWB

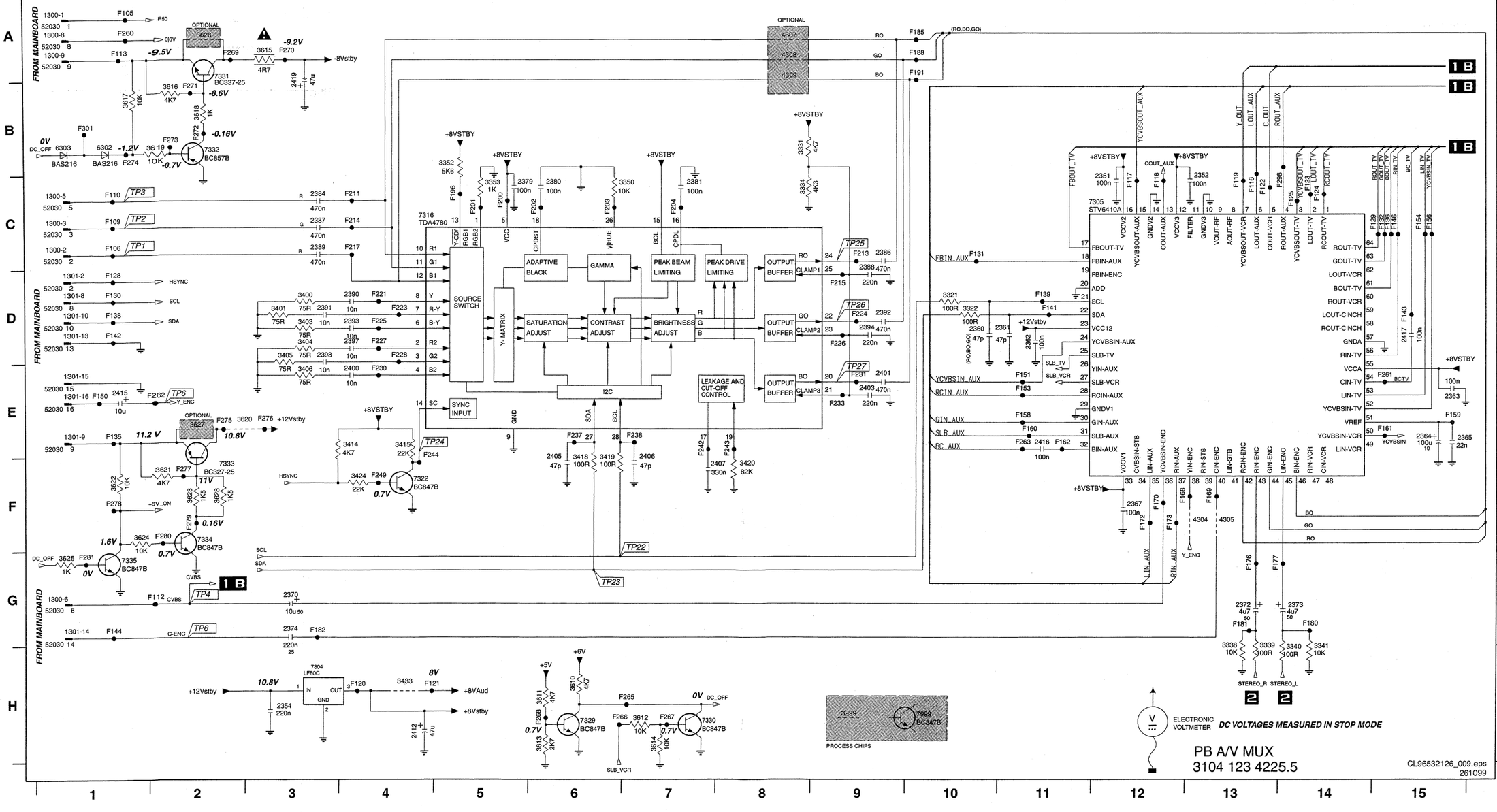

1100 A9 1101 A9 1102 A8 1106 A9 1107 A8 1108 A9 1109 A8 1110 A4 1112 A9 1113 A4 1115 A7 1116 A8 1117 A1 1118 A1 1119 A8 1121 A9 1122 A9 2106 A7 2117 A2 2123 A2 2124 A2 2126 A8 2129 A2 2130 A7 7105 A7 7106 A7 7110 A7 7112 A7
/ag-intt/mentor/DVD_2000/3139_243_30081_01
8239_210_87800
JP SOUND
JP MAMA
JP SONY
PLAY
PREV
NEXT
PAUSE
OPEN/CLOSE


2100 A2 2101 A2 2102 A8 2103 A8 2105 A8 2107 A8 2108 A8 2109 A8 2110 A4 2111 A4 2114 A4 2115 A9 2116 A9 2118 A9 2119 A9 2120 A3 2121 A3 2122 A8 2125 A8 2128 A8 2131 A4 2202 A4 2211 A8 3102 A2 3103 A2 3104 A2 3105 A8 3106 A8 3107 A8 3108 A4 3110 A8 3111 A8 3113 A8 3114 A8 3117 A3 3118 A3 3119 A3 3120 A3 3121 A3 3122 A3 3123 A9 3125 A9 3126 A3 3127 A3 3128 A3 3129 A3 3130 A3 3131 A3 3132 A9 3133 A9 3134 A9 3135 A9 3136 A9 3137 A9 3138 A2 3139 A9 3140 A9 3142 A9 3143 A9 3145 A9 3146 A4 3149 A4 5100 A4 5101 A6 5102 A2 5104 A2 5105 A8 5107 A8 5108 A7 7100 A7 7101 A7 7103 A7 7104 A7 7108 A7 7109 A1 A9
3136 243 30081
GND OUT IN 6102 A
CL06532021_005.eps
230200

## A/V Board (Video control & SCART Switch)

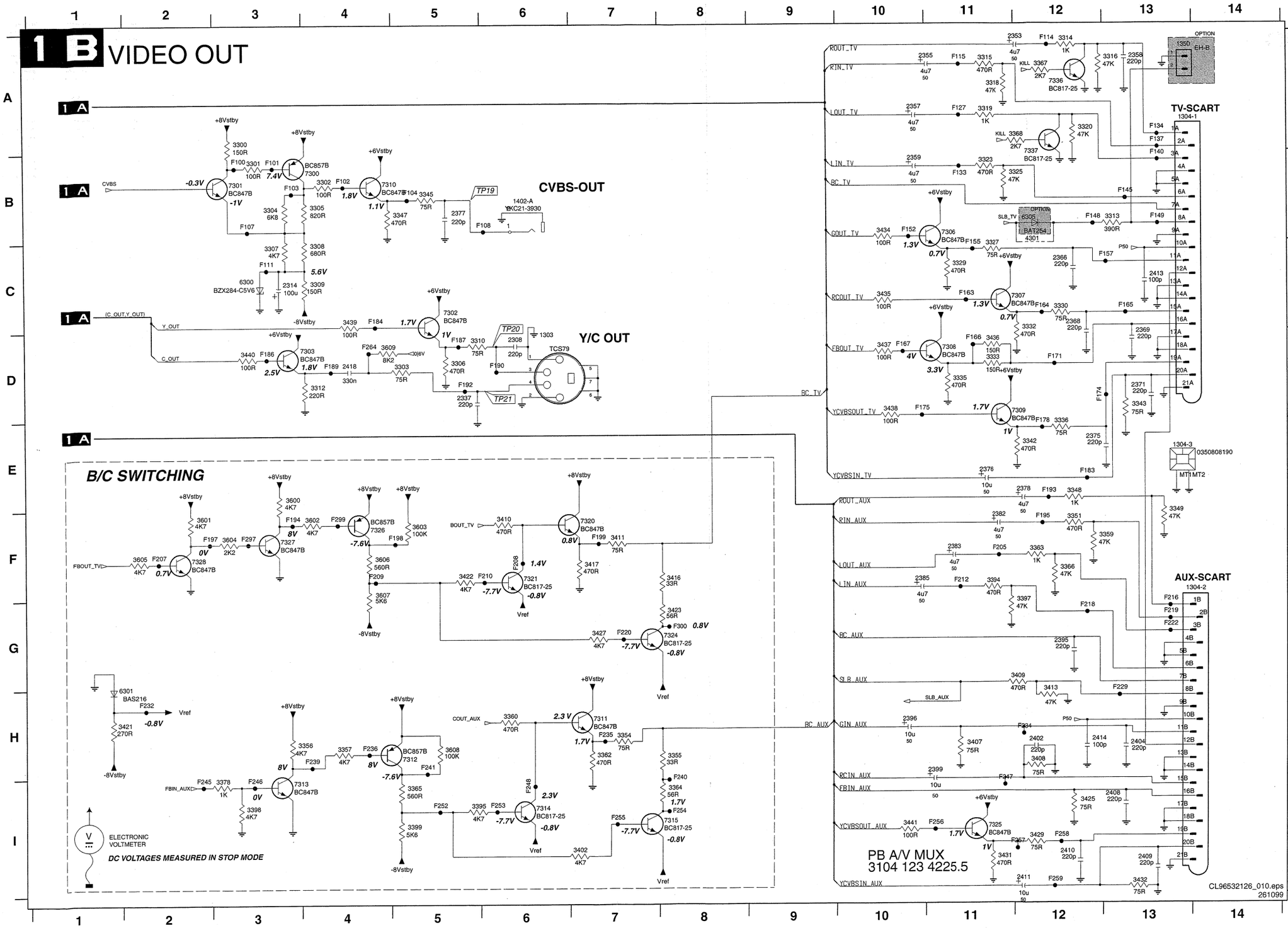
| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1300-1 A1 | 1301-14 G1 | 2360 D10 | 2373 G14 | 2389 C3 | 2401 E9 | 2419 A3 | 3350 C7 | 3414 E4 | 3612 H7 | 3621 F2 | 4304 F13 | 7316 C4 | 7999 H10 | F118 C12 | F129 C15 | F142 D1 | F158 E11 | F173 F12 | F196 C5 | F215 D9 | F230 E4 | F260 A1 | F270 A3 | F279 F2 |
| 1300-2 C1 | 1301-15 E1 | 2361 D11 | 2374 G3 | 2390 D4 | 2403 E9 | 3321 D10 | 3352 B5 | 3415 E4 | 3613 H6 | 3622 F1 | 4305 F13 | 7322 F4 | F105 A1 | F119 C13 | F130 D1 | F143 D15 | F159 E15 | F174 G13 | F200 C5 | F217 C4 | F231 E9 | F261 E15 | F271 B2 | F280 F2 |
| 1300-3 C1 | 1301-16 E1 | 2362 D11 | 2379 C5 | 2391 D3 | 2405 F6 | 3322 D10 | 3353 C5 | 3418 F6 | 3614 H7 | 3623 F2 | 4307 A8 | 7329 H6 | F106 C1 | F120 H4 | F131 C10 | F144 G1 | F160 E11 | F177 G13 | F201 C5 | F221 D4 | F233 E9 | F262 E2 | F272 B2 | F281 G1 |
| 1300-5 C1 | 1301-2 D1 | 2363 E15 | 2380 C6 | 2392 D9 | 2406 F7 | 3331 B8 | 3400 D3 | 3419 F6 | 3615 A3 | 3624 F1 | 4308 A8 | 7330 H7 | F109 C1 | F121 H4 | F132 C15 | F146 C15 | F161 E15 | F180 G14 | F202 C6 | F223 D4 | F237 E6 | F263 E11 | F273 B2 | F298 C14 |
| 1300-6 G1 | 1301-8 D1 | 2364 E15 | 2381 C7 | 2393 D4 | 2407 F8 | 3334 C8 | 3401 D3 | 3420 F8 | 3616 B2 | 3625 G1 | 4309 A8 | 7331 A2 | F110 C1 | F122 C13 | F135 E1 | F150 E1 | F162 E11 | F181 G13 | F203 C6 | F224 D9 | F238 E7 | F265 H7 | F274 B1 | F301 B1 |
| 1300-8 A1 | 1301-9 E1 | 2365 E15 | 2384 C3 | 2394 D9 | 2412 H4 | 3338 H13 | 3403 D3 | 3424 F4 | 3617 B1 | 3626 A2 | 6302 B1 | 7332 B2 | F112 G2 | F123 C14 | F136 C15 | F151 E11 | F168 F12 | F182 G3 | F204 C7 | F225 D4 | F242 E7 | F266 H6 | F275 E2 | |
| 1300-9 A1 | 2351 C12 | 2367 F12 | 2386 C9 | 2397 D4 | 2415 E1 | 3339 H13 | 3404 D3 | 3433 H4 | 3618 B2 | 3627 E2 | 6303 B1 | 7333 F2 | F113 A1 | F124 C14 | F138 D1 | F153 E11 | F169 F13 | F185 A10 | F211 C4 | F226 D9 | F243 E8 | F267 H7 | F276 E3 | |
| 1301-10 D1 | 2352 C13 | 2370 G3 | 2387 C3 | 2398 D3 | 2416 E11 | 3340 H14 | 3405 D3 | 3610 H6 | 3619 B2 | 3628 F2 | 7304 H3 | 7334 F2 | F116 C13 | F125 C14 | F139 D11 | F154 C15 | F170 F12 | F188 A10 | F213 C9 | F227 D4 | F244 F4 | F268 H6 | F277 F2 | |
| 1301-13 D1 | 2354 H3 | 2372 G13 | 2388 D9 | 2400 E4 | 2417 D15 | 3341 H14 | 3406 E3 | 3611 H6 | 3620 E2 | 3999 H9 | 7305 C11 | 7335 G1 | F117 C12 | F128 D1 | F141 D11 | F156 C15 | F172 F12 | F191 A10 | F214 C4 | F228 D4 | F249 F4 | F269 A2 | F278 F1 | |

# 1 A VIDEO CONTROL & SCART SWITCH



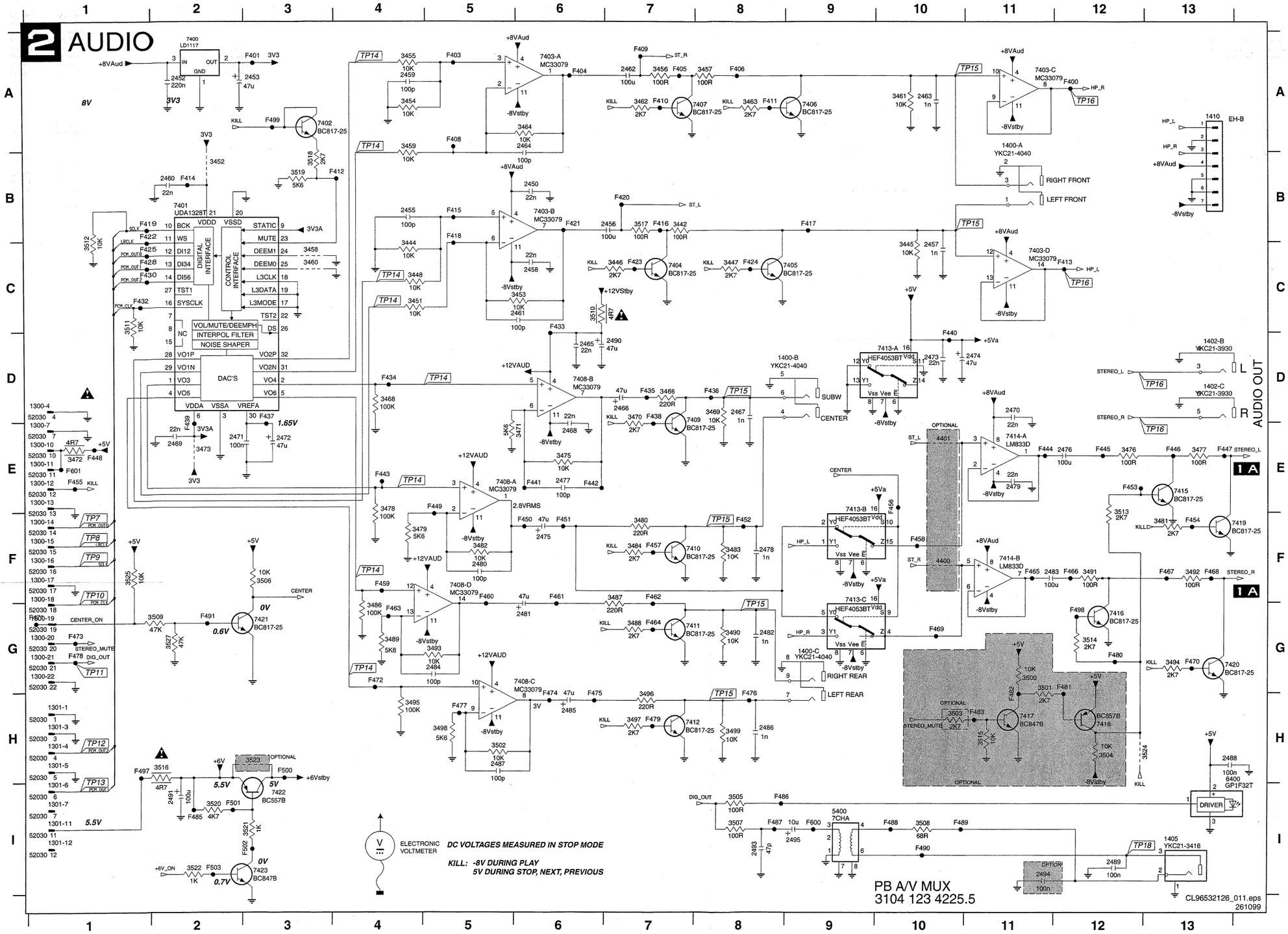
## A/V Board (Video out)

# 1 B VIDEO OUT




| | |
|---|---|
| 1303 D6 | 3601 F2 |
| 1304-1 A13 | 3602 F4 |
| 1304-2 F13 | 3603 F5 |
| 1304-3 E13 | 3604 F3 |
| 1350 A13 | 3605 F2 |
| 1402-A B6 | 3606 F4 |
| 2308 D6 | 3607 F4 |
| 2314 C3 | 3608 H5 |
| 2337 D5 | 3609 D4 |
| 2353 A12 | 4301 C12 |
| 2355 A11 | 6300 C3 |
| 2357 A10 | 6301 H2 |
| 2358 A13 | 6305 B12 |
| 2359 B10 | 7300 B4 |
| 2366 C12 | 7301 B3 |
| 2368 C12 | 7302 C5 |
| 2369 C13 | 7303 D3 |
| 2371 D13 | 7306 B11 |
| 2375 E12 | 7307 C11 |
| 2376 E11 | 7308 D11 |
| 2377 B5 | 7309 D11 |
| 2378 E12 | 7310 B4 |
| 2382 F11 | 7311 H7 |
| 2383 F11 | 7312 H5 |
| 2385 F10 | 7313 I3 |
| 2395 G12 | 7314 I6 |
| 2396 H10 | 7315 I8 |
| 2399 H11 | 7320 F7 |
| 2402 H12 | 7321 F6 |
| 2404 H13 | 7324 G8 |
| 2408 I13 | 7325 I11 |
| 2409 I13 | 7326 F4 |
| 2410 I12 | 7327 F3 |
| 2411 I12 | 7328 F2 |
| 2413 C13 | 7336 A12 |
| 2414 H12 | 7337 B12 |
| 2418 D4 | F100 B3 |
| 3300 A3 | F101 B3 |
| 3301 B3 | F102 B4 |
| 3302 B4 | F103 B3 |
| 3303 D5 | F104 B5 |
| 3304 B3 | F107 B3 |
| 3305 B4 | F108 B6 |
| 3306 D5 | F111 C3 |
| 3307 C3 | F114 A12 |
| 3308 C4 | F115 A11 |
| 3309 C4 | F127 A11 |
| 3310 D5 | F133 B11 |
| 3312 D4 | F134 A13 |
| 3313 B13 | F137 A13 |
| 3314 A12 | F140 B13 |
| 3315 A11 | F145 B13 |
| 3316 A13 | F148 B12 |
| 3318 A11 | F149 B13 |
| 3319 A11 | F152 B10 |
| 3320 A12 | F155 C11 |
| 3323 B11 | F157 C13 |
| 3325 B12 | F163 C11 |
| 3327 C11 | F164 C12 |
| 3329 C11 | F165 C13 |
| 3330 C12 | F166 D11 |
| 3332 C12 | F167 D10 |
| 3333 D11 | F171 D12 |
| 3335 D11 | F174 D12 |
| 3336 E12 | F175 D10 |
| 3342 E12 | F178 E12 |
| 3343 D13 | F183 E12 |
| 3345 B5 | F184 C4 |
| 3347 B5 | F186 D3 |
| 3348 E12 | F187 D5 |
| 3349 F13 | F189 D4 |
| 3351 F12 | F190 D6 |
| 3354 H7 | F192 D5 |
| 3355 H8 | F193 E12 |
| 3356 H4 | F194 F3 |
| 3357 H4 | F195 F12 |
| 3359 F13 | F197 F2 |
| 3360 H6 | F198 F5 |
| 3362 H7 | F199 F7 |
| 3363 F12 | F205 F11 |
| 3364 I8 | F207 F2 |
| 3365 I5 | F208 F6 |
| 3366 F12 | F209 F4 |
| 3367 A12 | F210 F6 |
| 3368 A12 | F212 F11 |
| 3378 I3 | F216 G13 |
| 3394 F11 | F218 G12 |
| 3395 I5 | F219 G13 |
| 3397 G12 | F220 G7 |
| 3398 I3 | F222 G13 |
| 3399 I5 | F229 H13 |
| 3402 I7 | F232 H2 |
| 3407 H11 | F234 H12 |
| 3408 H12 | F235 H7 |
| 3409 G12 | F236 H4 |
| 3410 F6 | F239 H4 |
| 3411 F7 | F240 H8 |
| 3413 H12 | F241 H5 |
| 3416 F8 | F245 I2 |
| 3417 F7 | F246 I3 |
| 3421 H2 | F247 I11 |
| 3422 F5 | F248 I6 |
| 3423 G8 | F252 I5 |
| 3425 I12 | F253 I6 |
| 3427 G7 | F254 I8 |
| 3429 I12 | F255 I7 |
| 3431 I11 | F256 I11 |
| 3432 I13 | F257 I12 |
| 3434 B10 | F258 I12 |
| 3435 C10 | F259 I12 |
| 3436 D11 | F264 D4 |
| 3437 D10 | F297 F3 |
| 3438 D10 | F299 F4 |
| 3439 C4 | F300 G8 |
| 3440 D3 | |
| 3441 I10 | |
| 3600 E3 | |

## A/V Board (Audio)




| | | |
|---|---|---|
| 1300-10 E1 | 3493 G5 | F452 F8 |
| 1300-11 E1 | 3494 G13 | F453 E12 |
| 1300-12 E1 | 3495 H4 | F454 F13 |
| 1300-13 E1 | 3496 H7 | F455 E1 |
| 1300-14 F1 | 3497 H7 | F456 E10 |
| 1300-15 F1 | 3498 H5 | F457 F7 |
| 1300-16 F1 | 3499 H8 | F458 F10 |
| 1300-17 F1 | 3500 G11 | F459 F4 |
| 1300-18 F1 | 3501 G11 | F460 F5 |
| 1300-19 G1 | 3502 H5 | F461 F6 |
| 1300-20 G1 | 3503 H10 | F462 F7 |
| 1300-21 G1 | 3504 H12 | F463 G4 |
| 1300-22 G1 | 3505 I8 | F464 G7 |
| 1300-4 D1 | 3506 F3 | F465 F11 |
| 1300-7 E1 | 3507 I8 | F466 F12 |
| 1301-1 H1 | 3508 I10 | F467 F13 |
| 1301-11 I1 | 3509 G2 | F468 F13 |
| 1301-12 I1 | 3510 C6 | F469 G10 |
| 1301-3 H1 | 3511 C1 | F470 G13 |
| 1301-4 H1 | 3512 C1 | F471 G1 |
| 1301-5 H1 | 3513 F12 | F472 G4 |
| 1301-6 I1 | 3514 G12 | F473 G1 |
| 1301-7 I1 | 3515 H11 | F474 H6 |
| 1400-A A11 | 3516 H2 | F475 H6 |
| 1400-B D9 | 3517 B7 | F476 H8 |
| 1400-C G9 | 3518 B3 | F477 H5 |
| 1402-B D13 | 3519 B3 | F478 G1 |
| 1402-C D13 | 3520 I2 | F479 H7 |
| 1405 I13 | 3521 I3 | F480 G12 |
| 1410 A13 | 3522 I2 | F481 G12 |
| 2450 B6 | 3523 H3 | F482 H11 |
| 2452 A2 | 3524 H13 | F483 H11 |
| 2453 A3 | 3525 F1 | F485 I2 |
| 2455 B4 | 3527 G2 | F486 I8 |
| 2456 B7 | 4400 F10 | F487 I8 |
| 2457 C10 | 4401 E10 | F488 I10 |
| 2458 C6 | 5400 I9 | F489 I10 |
| 2459 A4 | 6400 H13 | F490 I10 |
| 2460 B2 | 7400 A2 | F491 G2 |
| 2461 C6 | 7401 B2 | F497 H1 |
| 2462 A7 | 7402 A3 | F498 G12 |
| 2463 A10 | 7403-A A6 | F499 A3 |
| 2464 A6 | 7403-B B6 | F500 H3 |
| 2465 D6 | 7403-C A11 | F501 I2 |
| 2466 D7 | 7403-D C11 | F502 I3 |
| 2467 D8 | 7404 C7 | F503 I2 |
| 2468 E6 | 7405 C8 | F600 I9 |
| 2469 E2 | 7406 A9 | F601 E1 |
| 2470 D11 | 7407 A7 | |
| 2471 E2 | 7408-A E5 | |
| 2472 E3 | 7408-B D6 | |
| 2473 D10 | 7408-C G5 | |
| 2474 D11 | 7408-D F5 | |
| 2475 F6 | 7409 D7 | |
| 2476 E12 | 7410 F7 | |
| 2477 E6 | 7411 G7 | |
| 2478 F8 | 7412 H7 | |
| 2479 E11 | 7413-A D10 | |
| 2480 F5 | 7413-B E9 | |
| 2481 G6 | 7413-C F9 | |
| 2482 G8 | 7414-A E11 | |
| 2483 F11 | 7414-B F11 | |
| 2484 G5 | 7415 E13 | |
| 2485 H6 | 7416 G12 | |
| 2486 H8 | 7417 H11 | |
| 2487 H5 | 7418 H12 | |
| 2488 H13 | 7419 F13 | |
| 2489 I12 | 7420 G13 | |
| 2490 D7 | 7421 G3 | |
| 2491 I2 | 7422 I3 | |
| 2493 I8 | 7423 I3 | |
| 2494 I12 | F400 A12 | |
| 2495 I9 | F401 A3 | |
| 3442 B7 | F403 A5 | |
| 3444 C4 | F404 A6 | |
| 3445 C10 | F405 A7 | |
| 3446 C7 | F406 A8 | |
| 3447 C8 | F408 A5 | |
| 3448 C4 | F409 A7 | |
| 3451 C4 | F410 A7 | |
| 3452 B2 | F411 A8 | |
| 3453 C6 | F412 B4 | |
| 3454 A4 | F413 C12 | |
| 3455 A4 | F414 B2 | |
| 3456 A7 | F415 B5 | |
| 3457 A8 | F416 B7 | |
| 3458 C3 | F417 B9 | |
| 3459 A4 | F418 B5 | |
| 3460 C3 | F419 B1 | |
| 3461 A10 | F420 B7 | |
| 3462 A7 | F421 B6 | |
| 3463 A8 | F422 B1 | |
| 3464 A6 | F423 C7 | |
| 3466 D7 | F424 C8 | |
| 3468 D4 | F425 C1 | |
| 3469 D8 | F428 C1 | |
| 3470 D7 | F430 C1 | |
| 3471 E6 | F432 C1 | |
| 3472 E1 | F433 C6 | |
| 3473 E2 | F434 D4 | |
| 3475 E6 | F435 D7 | |
| 3476 E12 | F436 D8 | |
| 3477 E13 | F437 D3 | |
| 3478 E4 | F438 D7 | |
| 3479 F4 | F439 E2 | |
| 3480 F7 | F440 D10 | |
| 3481 F13 | F441 E6 | |
| 3482 F5 | F442 E6 | |
| 3483 F8 | F443 E4 | |
| 3484 F7 | F444 E11 | |
| 3486 G4 | F445 E12 | |
| 3487 F7 | F446 E13 | |
| 3488 G7 | F447 E13 | |
| 3489 G4 | F448 E1 | |
| 3490 G8 | F449 E5 | |
| 3491 F12 | F450 F6 | |
| 3492 F13 | F451 F6 | |

## Lay out AV board

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1300 A3 | 2353 B6 | 2378 B6 | 2400 A4 | 2456 B3 | 2483 B3 | 3332 B6 | 3395 A6 | 3423 B6 | 3454 B2 | 3473 A1 | 3514 B4 | 3610 A3 | 3623 A4 | 6400 B1 | 7313 A6 | 7334 A4 | 7421 B3 |
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| 1303 B5 | 2357 A6 | 2383 B6 | 2402 B6 | 2460 B1 | 2490 B1 | 3342 B6 | 3402 A6 | 3427 A6 | 3456 B3 | 3479 A1 | 3518 B1 | 3612 A3 | 3625 B4 | 7301 B4 | 7320 B6 | 7400 A2 | 7423 B5 |
| 1304 B6 | 2359 B6 | 2384 B4 | 2411 A6 | 2462 B2 | 2491 B2 | 3343 B4 | 3405 A4 | 3432 B6 | 3457 B3 | 3486 A1 | 3519 B1 | 3613 A3 | 3626 A3 | 7302 B5 | 7321 A6 | 7401 A1 | 7999 B2 |
| 1350 A5 | 2362 A6 | 2385 A6 | 2412 A4 | 2466 B2 | 2495 B2 | 3353 A4 | 3406 A4 | 3434 B6 | 3458 B1 | 3489 A1 | 3523 B5 | 3614 A3 | 3627 A4 | 7303 B5 | 7324 B6 | 7402 B1 | |
| 1400 B2 | 2364 A5 | 2387 B4 | 2414 B6 | 2468 A1 | 3300 B4 | 3354 A6 | 3408 B6 | 3435 B6 | 3459 B2 | 3495 A1 | 3524 B3 | 3615 A3 | 3628 A4 | 7304 B3 | 7327 A6 | 7406 B3 | |
| 1402 B4 | 2367 A6 | 2389 B4 | 2415 A4 | 2469 A1 | 3302 B4 | 3355 A6 | 3409 B6 | 3438 B6 | 3460 B1 | 3498 A1 | 3525 A3 | 3617 A2 | 4308 A5 | 7305 A6 | 7328 A6 | 7407 B3 | |
| 1405 B2 | 2370 B4 | 2392 A6 | 2416 B6 | 2472 A2 | 3306 B5 | 3360 A6 | 3410 B6 | 3439 B5 | 3462 B3 | 3503 B4 | 3527 A3 | 3618 A2 | 4309 B5 | 7306 B6 | 7329 A3 | 7415 B3 | |
| 1410 A1 | 2372 A5 | 2395 B6 | 2417 A5 | 2474 B3 | 3312 B6 | 3362 A6 | 3414 B5 | 3440 B5 | 3463 B3 | 3506 B3 | 3600 A6 | 3619 A2 | 5400 B1 | 7307 B6 | 7330 A3 | 7416 B4 | |
| 2314 B4 | 2373 B5 | 2396 A6 | 2418 B5 | 2475 B2 | 3313 B6 | 3364 A6 | 3415 B4 | 3448 A2 | 3468 B1 | 3509 A3 | 3604 A6 | 3620 A4 | 6301 B6 | 7309 B6 | 7331 A3 | 7416 B3 | |
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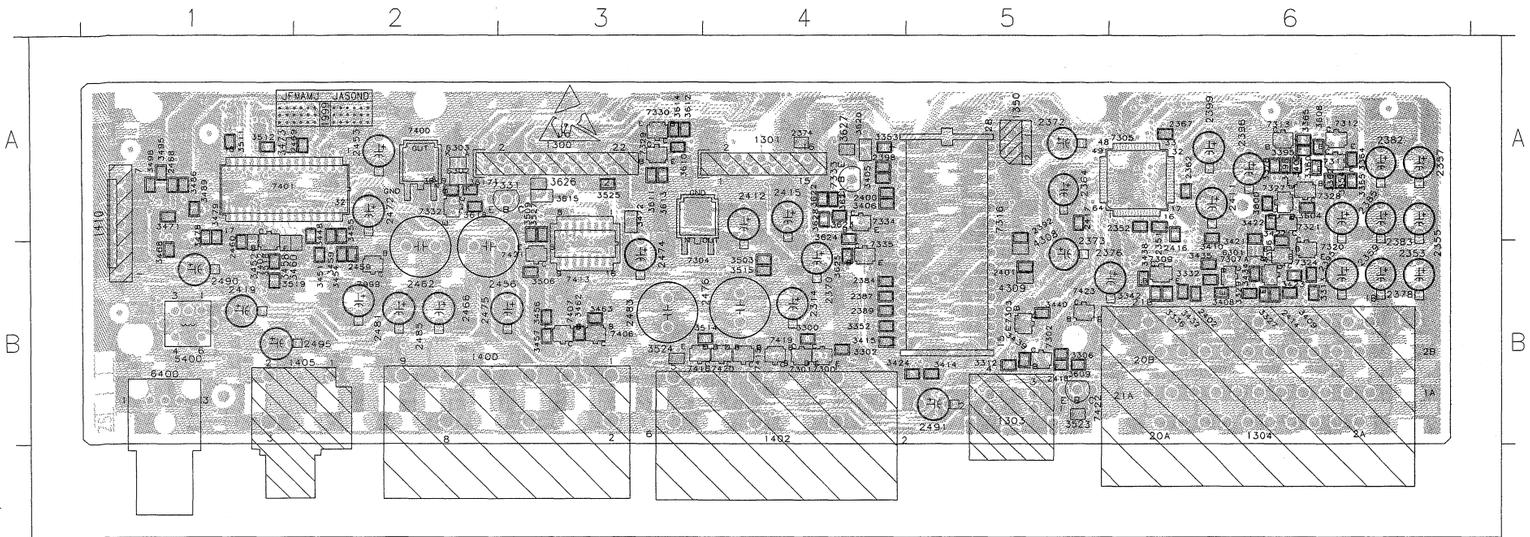
| 2352 A6 | 2376 B5 | 2399 A6 | 2453 A2 | 2481 B2 | 3329 B6 | 3378 A6 | 3422 A6 | 3452 B1 | 3472 A3 | 3512 A1 | 3609 B5 | 3622 A4 | 6303 A2 | 7312 A6 | 7333 A4 | 7420 B4 | |

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| 2337 A2 | 2377 A3 | 2404 A1 | 2458 A5 | 2480 A6 | 3305 A3 | 3322 A1 | 3343 A1 | 3367 A1 | 3416 A1 | 3442 A4 | 3476 A3 | 3493 A6 | 3510 A6 | 3607 A1 | 7310 A3 | 7409 A5 |
| 2354 A3 | 2379 A2 | 2405 A2 | 2461 A6 | 2482 A2 | 3307 A3 | 3323 A1 | 3345 A3 | 3368 A1 | 3417 A1 | 3444 A5 | 3477 A3 | 3494 A5 | 3512 A3 | 3616 A6 | 7314 A1 | 7410 A4 |
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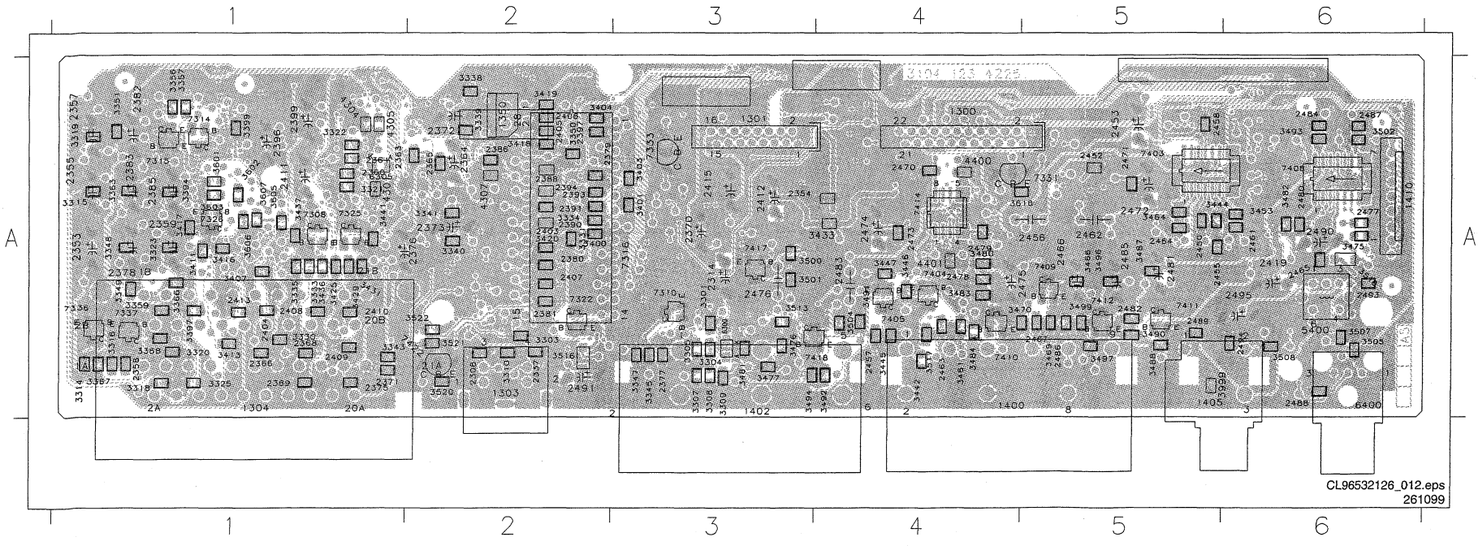
| 2361 A1 | 2386 A2 | 2408 A1 | 2465 A6 | 2487 A6 | 3310 A2 | 3331 A2 | 3349 A1 | 3399 A1 | 3420 A2 | 3447 A4 | 3482 A6 | 3499 A5 | 3520 A2 | 4304 A1 | 7325 A1 | 7414 A4 |
| 2363 A1 | 2388 A2 | 2409 A1 | 2467 A5 | 2488 A6 | 3314 A1 | 3333 A1 | 3350 A2 | 3400 A2 | 3425 A1 | 3453 A6 | 3483 A4 | 3500 A3 | 3521 A2 | 4305 A1 | 7326 A1 | 7417 A3 |
| 2365 A2 | 2390 A2 | 2410 A1 | 2469 A5 | 2489 A5 | 3315 A1 | 3334 A1 | 3351 A1 | 3401 A3 | 3429 A1 | 3461 A4 | 3484 A4 | 3501 A3 | 3522 A2 | 4307 A2 | 7336 A1 | 7418 A4 |
| 2366 A1 | 2391 A2 | 2413 A1 | 2471 A5 | 2493 A6 | 3316 A1 | 3335 A1 | 3356 A1 | 3403 A3 | 3431 A1 | 3464 A5 | 3487 A5 | 3502 A6 | 3601 A1 | 4400 A4 | 7337 A1 | | |
| 2368 A1 | 2393 A2 | 2450 A5 | 2473 A4 | 2494 A6 | 3318 A1 | 3338 A2 | 3357 A1 | 3404 A2 | 3433 A4 | 3466 A5 | 3488 A5 | 3504 A4 | 3602 A1 | 4401 A4 | 7403 A5 | | |
| 2369 A1 | 2394 A2 | 2452 A6 | 2477 A6 | 3301 A3 | 3319 A1 | 3339 A2 | 3359 A1 | 3407 A1 | 3436 A1 | 3469 A5 | 3490 A5 | 3505 A6 | 3603 A1 | 6300 A3 | 7404 A4 | | |
| 2371 A1 | 2397 A2 | 2455 A5 | 2478 A4 | 3303 A2 | 3320 A1 | 3340 A2 | 3363 A1 | 3411 A1 | 3437 A1 | 3470 A4 | 3491 A4 | 3507 A6 | 3605 A1 | 6305 A1 | 7405 A4 | | |



***Personal notes:***

***Personal notes:***

# 8. Alignments

No electrical alignments available

# 9. Circuit descriptions and list of abbreviations

## 9.1 Current mode Power Supply 20Ps223

### 9.1.1 Introduction

The switch mode power supply ( SPMS ) is mains isolated. The control IC 7145 ( UC 3842A ) produces pulses to drive the power switch, Mosfet 7125.
Power supply regulation is achieved by using duty cycle control at fix frequency ,of approximately 58KHz ,determined by the RC timing components.

### 9.1.2 General Description of UC 3842A

The UC 3842 is a high performance fixed frequency current mode controller that is specifically designed for off-line and DC-to-DC converter application. This integrated circuit feature a trimmed oscillator for precise duty cycle control, a temperature compensated reference, high gain error amplifier, current sensing comparator and a high current totem pole output ideally suited for driving a power MOSFET. Also included are protective features consisting of input and reference undervoltage lockouts each with hysteresis, cycle by cycle current limiting, programmable output deadtime and a latch for single pulse metering.

A representative Block diagram and Pin function description is shown in Fig 1 and Fig 2 respectively.

### 9.1.3 BLOCK DIAGRAM

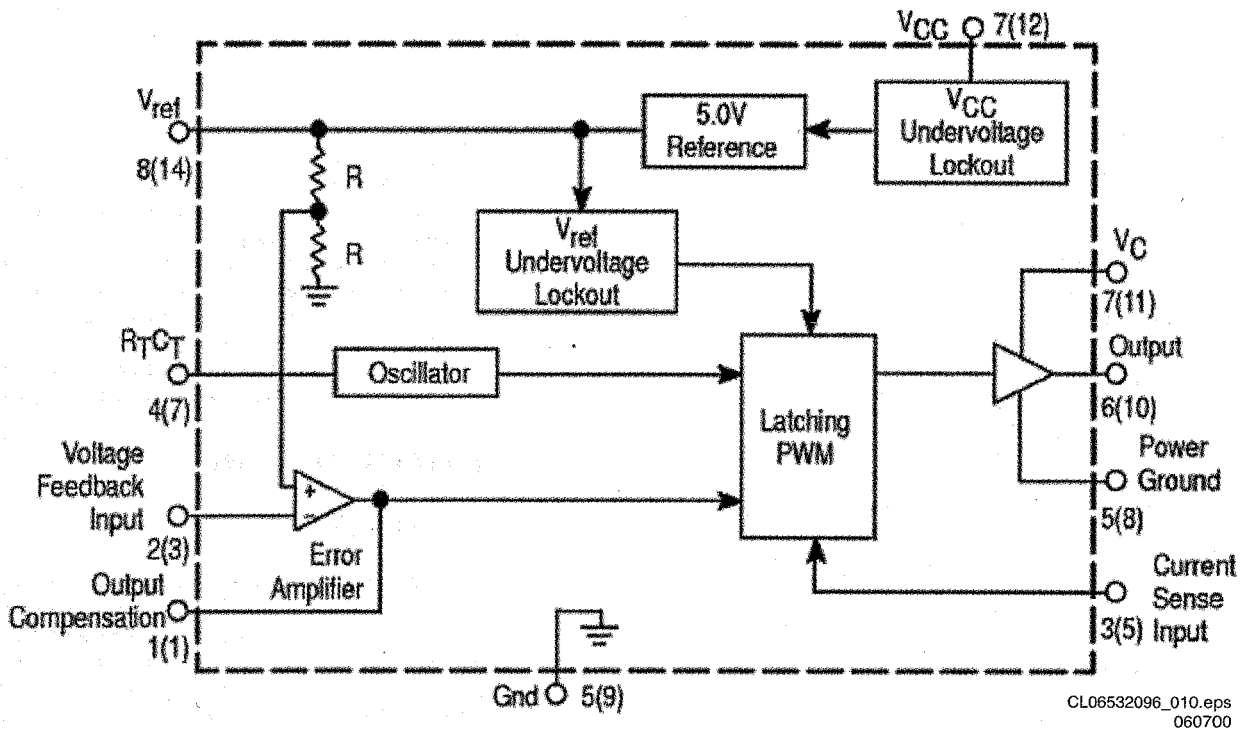



Figure 9-1

### 9.1.4 Pin function description

| Pin | | Function | Description |
|---|---|---|---|
| 8-Pin | 14-Pin | | |
| 1 | 1 | Compensation | This pin is Error Amplifier output and is made available for loop compensation. |
| 2 | 3 | Voltage Feedback | This is the inverting input of the Error Amplifier. It is normally connected to the switching power supply output through a resistor divider. |
| 3 | 5 | Current Sense | A voltage proportional to inductor current is connected to this input. The PWM uses this information to terminate the output switch conduction. |
| 4 | 7 | $R_T/C_T$ | The Oscillator frequency and maximum Output duty cycle are programmed by connecting resistor $R_T$ to $V_{ref}$ and capacitor $C_T$ to ground. Operation to 500 kHz is possible. |
| 5 | – | Gnd | This pin is the combined control circuitry and power ground (8-pin package only). |
| 6 | 10 | Output | This output directly drives the gate of a power MOSFET. Peak currents up to 1.0 A are sourced and sunk by this pin. |
| 7 | 12 | $V_{CC}$ | This pin is the positive supply of the control IC. |
| 8 | 14 | $V_{ref}$ | This is the reference output. It provides charging current for capacitor $C_T$ through resistor $R_T$. |
| – | 8 | Power Ground | This pin is a separate power ground return (14-pin package only) that is connected back to the power source. It is used to reduce the effects of switching transient noise on the control circuitry. |
| – | 11 | $V_C$ | The Output high state ($V_{OH}$) is set by the voltage applied to this pin (14-pin package only). With a separate power source connection, it can reduce the effects of switching transient noise on the control circuitry. |
| – | 9 | Gnd | This pin is the control circuitry ground return (14-pin package only) and is connected back to the power source ground. |
| – | 2,4,6,13 | NC | No connection (14-pin package only). These pins are not internally connected. |

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**Figure 9-2**

### 9.1.5 Pin connection

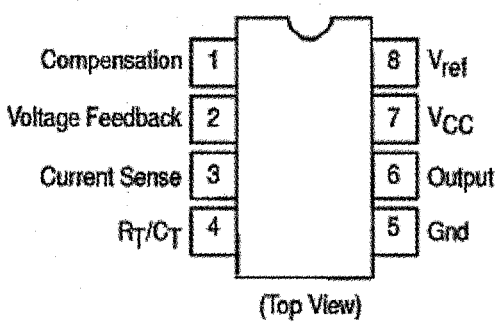


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**Figure 9-3**

### 9.1.6 Output voltages

- +12V ( For Display board, Monoboard, A/V board ) created via D6241, C2240, L5240, C2232 (This voltage is also present during standby)
- +5V_ stdby ( For Display board, Standby PCB, Monoboard ) created from +12V via regulator 7233 and C2233 (This voltage is also present during standby)
- +6V_stdby ( For A/V board ) created from D6230, C2230, C2238, L5230,L5231 (This voltage is also present during standby)
- +5V ( For Monoboard, A/V board ) derive from +6V stdby by the loader-up circuit form by Mosfet 7236, reference components T7237, R3236, R3237, C2239 and it will be switch off via R3235, T7235 during Standby.
- -5V / -8V_stdby ( For Monoboard,A/V board ) -5V regulated by voltage regulator 7259 and will be switched off via D6256, T7256 and T7255 during standby ( control signal STAND BY is high ).When Coil L5223 is mounted instead of this circuit,a supply voltage -8V will be present at pin 9 of connector 0205. This -8V_stdby voltage is also present during standby
- 3V3 ( For Monoboard, A/V board ) The 3V3 power supply is regulated by the control loop comprising of 7201, 7131 and 7145 of the switch mode PSU. This voltage is also present during standby
- -40V ( For Display board ) created via D6261,R3260, L5260, C2260 This will not be present during standby

## 9.2 CONTROL CIRCUITRY

### 9.2.1 Mains input circuit

The mains voltage is rectified by bridge rectifier D6120 filter by either C2121 or C2123 . The DC voltage across C2121/ C2123 is the DC input voltage ,approximately 300V, is the DC input to pin 1 of transformer T5131.The mains input also consists of a lighting protection circuit and an EMI filter. The lighting protection comprises of R3120,D6122,D6123,C2122 and R3121.The EMI filter is formed by L5120,C2120,C2125 and C2126.The purpose of the EMI filter is to filter off inflow of noises into the mains.

### 9.2.2 Start-up and takeover circuitry

The start-up circuitry consist R3123,R3134,C2129 and with the mains voltage input, the C2129 will charge via R3123 and R3134. When the voltage at pin 7 of IC7145 reaches the start-up threshold of min 14.5V,
IC7145 will start-up and the control circuit start to operate. After start-up, the max sinking current of 17mA is required by IC7145 which is not able to be delivered by the start-up circuitry, so the takeover circuitry must be present.

If the takeover circuit does not occurred, the supply voltage at pin 7 will decrease gradually till it reaches the IC7145 minimal operating voltage of 8.5Vand the IC will switch off. The whole operation cycle will repeat itself with audible hiccup sound if takeover is not present.

The takeover circuit comprises of D6132, D6133, C2133, C2134. During the control circuit start-up, the voltage across winding pin 7 and 9 will gradually built up and charged C2134 via D6133, D6132, C2133,R3135 which will takeover the supply voltage of T7145 at pin 7.

### 9.2.3 Secondary voltage sensing

The secondary voltage regulating circuit comprise of the opto-coupler 7131 which isolate the error signal from the control IC7145 ,on the primary side, and a reference component 7201 ( TL431 ). The 7201 can be represented by two components:

- A very stable and accurate reference diode
- A high gain amplifier

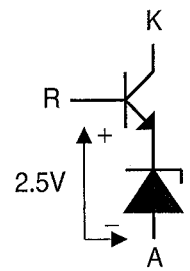


**Figure 9-4**

When the output voltage increases, due to a reduction in the load, the voltage across R3205 and R3206 increases to above the internal reference voltage of about 2.5V then TL431 conduct. The current through the opto-coupler 7131 will increase due to the fact that the series resistor in 7201 decreases. This result in a increase of voltage across C2152, which is connected to pin 2 of IC7145, thus reducing the on-time of FET 7125.
In the event of a decrease in output voltage (increase in load ),the control circuit will operate in the opposite way to the explaination above.

### 9.2.4 Primary current sensing

The current through the FET 7125 resulting in a voltage drop across R3126,R3127,R3128 which is couple to pin 3 of IC7145,current sense input.The higher the input voltage, the more the primary current is limited. In this way the maximum output power of the power supply is limited.

### 9.2.5 Undervoltage protection

Two undervoltage lockout comparators have been incorporated to guarantee that the IC7145 is fully functional before the output stage is enable. The supply voltage at pin 7 and reference voltage at pin 8 of IC7145 are each monitored by separate comparators with built-in hysteresis.
If the supply voltage at pin 7 of IC7145 drops below 10V ( typical ), due to a secondary voltage is short-circuit or excessive load, the drive pulse at pin 6 of IC7145 will be disabled and the controller will switch off the complete SMPS.
Remarks : In the event of the overvoltage situation remaining present, the SPMS will go in sequence of protection,start- up cycle, protection and the cycle repeats. This effect is highly audible.

### 9.2.6 Overvoltage protection

The overvoltage circuitry comprising of D6141,R3139, R3150, R3141,T7141, T7150 which is used to detect an over voltage situation on the secondary side of the transformer. After start-up, when the voltage across C2133 exceeds 18V,the overvoltage circuit will trigger the internal latch circuit, pin 1 of IC7145 and the output buffer is disabled and it goes into the overvoltage protection and a complete restart sequence is required.

## 9.3 List of abbreviations

| | |
|---|---|
| B | Buffered Video input Blue from DVD monoboard |
| BC_AUX | Blue or Chroma input from AUX-scart |
| BC_TV | Blue or Chroma output to TV-scart |
| C_ENC | Buffered Chroma input from DVD monoboard |
| CVBS | Buffered Composite video input from DVD monoboard |
| DC_OFF | Control signal to switch off û8Vstby and +12Vstby during standby |
| DIG_OUT | Digital out |
| FBIN_AUX | Fast blanking input from AUX-scart |
| FBOUT_TV | Fast blanking output to TV-scart |
| G | Buffered Video input Green from DVD monoboard |
| GIN_AUX | Video input Green from AUX-scart |
| GOUT_TV | Video output Green to TV-scart |
| HP_L | Audio output left to headphone and audio scart switch TEA6420 |
| HP_R | Audio output right to headphone and audio scart switch TEA6420 |
| KILL | Kill control signal for audio outputs and for soft mute of DAC |
| LIN_AUX | Audio input left from AUX-scart |
| LIN_TV | Audio input left from TV-scart |
| LOUT_AUX | Audio output left to AUX-scart |
| LOUT_TV | Audio output left to TV-scart |
| LRCLK | Left/Right clock |
| PCM_CLK | Audio system clock for DAC |
| PCM_OUT0 | Audio serial output data |
| R | Buffered Video input Red from DVD monoboard |
| RCIN_TV | Red or Chroma input from TV-scart |
| RCOUT_TV | Red or Chroma output to TV-scart |
| RIN_AUX | Audio input right from AUX-scart |
| RIN_TV | Audio input right from TV-scart |
| ROUT_AUX | Audio output right to AUX-scart |
| ROUT_TV | Audio output right to TV-scart |
| SCL | I2C bus clock |
| SCLK | Audio serial bit clock |
| SDA | I2C bus data |
| SELECT | Control signal for video scart switches; high = TV ,low = AUX |
| SELECT_HIGH | Control signal for switching fast blanking and slow blanking signals; high = TV,.low = AUX |
| SLB_AUX | Slow blanking control signal from AUX-scart |
| SLB_TV | Slow blanking control signal to TV-scart |
| STANDBY | Control signal from STI5505 used to swith off û8Vstby and +12Vstby during standby. |
| STEREO_L | Audio cinch output left |
| STEREO_R | Audio cinch output right |
| Y_ENC | Buffered Luma input from DVD monoboard |
| YCVBSIN_AUX | Luma or CVBS input from AUX-scart |
| YCVBSIN_TV | Luma or CVBS input from TV-scart |
| YCVBSOUT_AUX | Luma or CVBS output to AUX-scart |
| YCVBSOUT_TV | Luma or CVBS output to TV-scart |
| 0/6/12 | Scart switch control signal A/V board. 0V : loop through (AUX to TV), 6V : play 16:9 format, 12V : play 4:3 format |

# 10. Spare parts list

## PSU 20PS223

### Various

| | | |
|---|---|---|
| 0025 | 4822 492 63524 | FIX. TRANSISTOR |
| 0101▲ | 4822 265 31015 | |
| 0120 | 4822 265 11253 | FUSE HOLDER 2P |
| 1120▲ | 4822 253 30383 | 19181 (2,5A) |

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| | | |
|---|---|---|
| 2120▲ | 4822 121 10512 | 275V 220nF 20% |
| 2121 | 8211 248 53120 | C CHM YK 68M 400VM RUBYCOnF |
| 2122 | 4822 121 70141 | 33nF 5% 400V |
| 2127 | 4822 122 50116 | 470pF 10% 1KV |
| 2130▲ | 4822 126 14572 | 100pF 10% 250V |
| 2131▲ | 4822 126 14133 | 1nF 20% 250V |
| 2133 | 4822 124 40248 | 10µF 20% 63V |
| 2134 | 2020 012 93111 | EL YK 35V S 47µF PM20 A |
| 2141 | 4822 124 22652 | 2.2µF 20% 50V |
| 2143 | 4822 126 14585 | 100nF 10% 50V |
| 2145 | 5322 126 10223 | 4.7nF 10% 63V |
| 2146 | 4822 126 14585 | 100nF 10% 50V |
| 2150 | 4822 126 14585 | 100nF 10% 50V |
| 2156 | 5322 122 31863 | 63V 330pF PM5 |
| 2157 | 5322 122 32268 | 470pF 10% 50V |
| 2202 | 4822 126 13838 | 100nF 50V 20% |
| 2210 | 2020 012 93728 | EL YK 10V S 2200µF PM20 B |
| 2230 | 4822 124 22779 | 1000µF 10V |
| 2232 | 4822 124 81021 | 100µF 20% 16V |
| 2233 | 4822 124 81021 | 100µF 20% 16V |
| 2234 | 4822 126 12105 | 50V 33nF PM5 |
| 2238 | 4822 124 81021 | 100µF 20% 16V |
| 2239 | 4822 124 81021 | 100µF 20% 16V |
| 2240 | 4822 124 81147 | 470µF 20% YK 25V |
| 2250 | 4822 124 41545 | 220µF 20% 16V |
| 2260 | 4822 124 81151 | 22µF 50V |

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| | | |
|---|---|---|
| 3105 | 4822 053 21684 | 680k 5% 0.5W |
| 3111 | 4822 116 52186 | 22Ω 5% 0.5W |
| 3120▲ | 4822 116 21217 | 1M A/423V 800V |
| 3121 | 4822 117 12181 | 470Ω 20% 0.5W |
| 3123 | 4822 116 83882 | 39k 5% 0.5W |
| 3125 | 4822 117 10833 | 10k 1% 0.1W |
| 3126 | 4822 050 24708 | 4Ω7 1% 0.6W |
| 3127 | 4822 116 80176 | 1Ω 5% 0.5W |
| 3128 | 4822 116 80176 | 1Ω 5% 0.5W |
| 3129 | 4822 116 83882 | 39k 5% 0.5W |
| 3134 | 4822 116 83882 | 39k 5% 0.5W |
| 3135 | 4822 053 11159 | 15Ω 5% 2W |
| 3139 | 4822 051 20479 | 47Ω 5% 0.1W |
| 3140 | 4822 116 52191 | 33Ω 5% 0.5W |
| 3141 | 4822 117 10833 | 10k 1% 0.1W |
| 3143 | 4822 117 10834 | 47k 1% 0.1W |
| 3145 | 4822 116 83933 | 15k 1% 0.1W |
| 3146 | 4822 117 11148 | 56k 1% 0.1W |
| 3150 | 4822 117 11139 | 1k5 1% 0.1W |
| 3153 | 4822 116 83933 | 15k 1% 0.1W |
| 3154 | 4822 051 10102 | 1k 2% 0.25W |
| 3155 | 4822 116 52219 | 330Ω 5% 0.5W |
| 3156 | 4822 051 20339 | 33Ω 5% 0.1W |
| 3201 | 4822 116 52176 | 10Ω 5% 0.5W |
| 3202 | 4822 117 11141 | 1k8 1% 0.1W |
| 3204 | 4822 117 11504 | 270Ω 1% 0.1W |
| 3205 | 4822 117 11145 | 4k7 1% 0.1W |
| 3206 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3207 | 4822 051 10102 | 1k 2% 0.25W |
| 3233 | 4822 050 11002 | 1k 1% 0.4W |
| 3234 | 4822 051 10102 | 1k 2% 0.25W |
| 3235 | 4822 116 83933 | 15k 1% 0.1W |
| 3236 | 4822 051 20472 | 4k7 5% 0.1W |
| 3237 | 4822 117 11145 | 4k7 1% 0.1W |
| 3260 | 4822 051 20102 | 1k 5% 0.1W |
| 3262 | 4822 116 83872 | 220Ω 5% 0.5W |
| 4xxx | 4822 051 10008 | 0Ω 5% 0.25W (1206) |
| 4xxx | 4822 051 20008 | 0Ω 5% 0.25W (0805) |

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| | | |
|---|---|---|
| 5120▲ | 4822 157 11846 | |
| 5125 | 4822 157 11411 | 100mH z |
| 5131▲ | 4822 146 10402 | TRAFO CT395FANF/PVF |
| 5210 | 4822 157 11722 | 6.8µH 20% 7.7X9.5 |
| 5223 | 4822 157 50963 | 2.2µH |
| 5231 | 4822 157 11722 | 6.8µH 20% 7.7X9.5 |
| 5240 | 4822 157 51195 | 1 µH 20% 4X9.8MM AXIAL |
| 5260 | 4822 157 11517 | 10µH 5% 2.3X3.4 |

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|---|---|---|
| 6110 | 5322 130 34574 | 1N4004G |
| 6111 | 5322 130 34574 | 1N4004G |
| 6120 | 4822 130 83707 | SINB80 |
| 6122 | 4822 130 34281 | BZX79-B15 |
| 6123 | 4822 130 34281 | BZX79-B15 |
| 6132 | 4822 130 42488 | BYD33D |
| 6133 | 4822 130 83649 | 1SS355 |
| 6140 | 4822 130 30621 | 1N4148 |
| 6141 | 4822 130 11152 | UDZ18B |
| 6150 | 4822 130 11148 | UDZ4.7B |
| 6210 | 4822 130 11584 | BYW98-200-C1 |
| 6230 | 4822 130 11584 | BYW98-200-C1 |
| 6241 | 4822 130 11584 | BYW98-200-C1 |
| 6250 | 4822 130 42606 | BYD33J |
| 6261 | 4822 130 42606 | BYD33J |

| | | |
|---|---|---|
| 7125 | 4822 130 11417 | STP3NB60FP |
| 7131▲ | 4822 130 91451 | CQY80NG |
| 7141 | 4822 130 44568 | BC557B |
| 7145 | 9322 145 88682 | UC3842A |
| 7150 | 4822 130 40959 | BC547B |
| 7201 | 4822 209 81397 | TL431CLPST |
| 7233 | 5322 209 86445 | LM7805CT |
| 7235 | 4822 130 42705 | BC847 |
| 7236 | 4822 130 11578 | STP16NE06 |
| 7237 | 4822 209 81397 | TL431CLPST |

### Mechanical

#### Various

| | | |
|---|---|---|
| 0010 | 3139 247 51521 | CAB FRONT DVD756/00X PPT |
| 0015 | 4822 459 10887 | |
| 0025 | 3139 247 51551 | BN STANDBY DVD756/ 00X PPT |
| 0030 | 3139 247 50900 | WINDOW DVD711/17X PNT PRT |
| 0035 | 3139 247 51581 | RING DVD756/00X PPT |
| 0040 | 3139 247 51561 | BN CONTROL DVD756/ 00X PPT |
| 0045 | 3139 240 00030 | DVD LOGO DVD711 |
| 0050 | 3139 247 51571 | DOOR DVD756/00X PPT |
| 0060 | 3139 241 20110 | DOOR SPRING |
| 0200 | 3139 247 51511 | FRONT COMPLETE DVD756/00X |
| 0208 | 3139 247 51541 | KNOB VOL DVD756/00X PPT |
| 0224 | 3139 247 50990 | |
| 0232 | 3139 247 51531 | COVER TOP DVD756/00X PPT |
| 0244 | 3139 247 51261 | FOOT ASSY DVD711 EU FOIL |
| 0245 | 3139 247 51271 | FOOT ASSY DVD711 EU |
| 0333 | 4822 321 11357 | AUDIO CORD SET |
| 0336 | 4822 321 61579 | |
| 0382 | 4822 321 61847 | SCART |
| 0384 | 3139 228 85970 | RC283207/01 |
| 0385▲ | 4822 321 10249 | SBC1201 MAINS CABLE |
| 0387 | 3139 246 10381 | IFU DVD756/00X |
| 1002 | 3139 248 80290 | |
| 1003 | 3139 248 80280 | |
| 1005 | 3122 427 22300 | PSU DVD2B+ INEUR 20PS223 |
| 1006 | 3139 248 80320 | |
| 1014 | 3139 110 34220 | FFC FOIL 22P/105/22P BD B |
| 1018 | 3139 110 34230 | FFC FOIL 16P/105/16P BD B |

## AV PCB

### Various

| | | |
|---|---|---|
| 1300 | 4822 265 11154 | 52030-2210 (22P) |
| 1301 | 4822 265 11103 | 52030-1610 (16P) |
| 1303 | 4822 267 10994 | 4P, MDIN |
| 1304 | 2422 033 00334 | CON BM EURO H 42P F BK GRND-L |
| 1402 | 4822 265 11566 | 3P YKC21-3930 |
| 1405 | 4822 267 31729 | |
| 1410 | 4822 265 41392 | B7B-EH-A |

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|---|---|---|
| 2308 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2314 | 4822 124 41584 | 100µF 20% 10V |
| 2337 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2351 | 4822 126 14585 | 100nF 10% 50V |
| 2352 | 4822 126 14585 | 100nF 10% 50V |
| 2353 | 4822 124 40769 | 4.7µF 20% 100V |
| 2354 | 4822 126 14076 | 220nF 25V. P8020 |
| 2355 | 4822 124 40769 | 4.7µF 20% 100V |
| 2357 | 4822 124 40769 | 4.7µF 20% 100V |
| 2358 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2359 | 4822 124 40769 | 4.7µF 20% 100V |
| 2360 | 4822 126 13692 | 47pF 1% 63V |
| 2361 | 4822 126 13692 | 47pF 1% 63V |
| 2362 | 4822 126 14585 | 100nF 10% 50V |
| 2363 | 4822 126 14585 | 100nF 10% 50V |
| 2364 | 4822 124 41584 | 100µF 20% 10V |
| 2365 | 5322 122 32654 | 22nF 10% 63V |
| 2366 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2367 | 4822 126 14585 | 100nF 10% 50V |
| 2368 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2369 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2370 | 4822 124 40248 | 10µF 20% 63V |
| 2371 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2372 | 4822 124 40769 | 4.7µF 20% 100V |
| 2373 | 4822 124 40769 | 4.7µF 20% 100V |
| 2374 | 4822 126 14076 | 220nF 25V. P8020 |
| 2375 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2376 | 4822 124 40248 | 10µF 20% 63V |
| 2377 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2378 | 4822 124 40769 | 4.7µF 20% 100V |
| 2379 | 4822 126 14585 | 100nF 10% 50V |
| 2380 | 4822 126 14585 | 100nF 10% 50V |
| 2381 | 4822 126 14585 | 100nF 10% 50V |
| 2382 | 4822 124 40769 | 4.7µF 20% 100V |
| 2383 | 4822 124 40769 | 4.7µF 20% 100V |
| 2384 | 4822 126 14583 | 470nF 10% 16V XTR |
| 2385 | 4822 124 40769 | 4.7µF 20% 100V |
| 2386 | 4822 126 14583 | 470nF 10% 16V XTR |
| 2387 | 4822 126 14583 | 470nF 10% 16V XTR |
| 2388 | 4822 126 14076 | 220nF 25V. P8020 |
| 2389 | 4822 126 14583 | 470nF 10% 16V XTR |
| 2390 | 4822 122 33177 | 10nF 20% 50V |
| 2391 | 4822 122 33177 | 10nF 20% 50V |
| 2392 | 4822 126 14583 | 470nF 10% 16V XTR |
| 2393 | 4822 122 33177 | 10nF 20% 50V |
| 2394 | 4822 126 14076 | 220nF 25V. P8020 |
| 2395 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2396 | 4822 124 40248 | 10µF 20% 63V |
| 2397 | 4822 122 33177 | 10nF 20% 50V |
| 2398 | 4822 122 33177 | 10nF 20% 50V |
| 2399 | 4822 124 40248 | 10µF 20% 63V |
| 2400 | 4822 122 33177 | 10nF 20% 50V |
| 2401 | 4822 126 14583 | 470nF 10% 16V XTR |
| 2402 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2403 | 4822 126 14076 | 220nF 25V. P8020 |
| 2404 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2405 | 4822 126 13692 | 47pF 1% 63V |
| 2406 | 4822 126 13692 | 47pF 1% 63V |
| 2407 | 2222 780 15656 | 16V 330nF PM10 R |
| 2408 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2409 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2410 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2411 | 4822 124 40248 | 10µF 20% 63V |
| 2412 | 4822 124 40433 | 47µF 20% 25V |
| 2413 | 5322 122 32531 | 100pF 5% 50V |
| 2414 | 5322 122 32531 | 100pF 5% 50V |
| 2415 | 4822 124 40248 | 10µF 20% 63V |
| 2416 | 4822 126 14585 | 100nF 10% 50V |
| 2417 | 4822 126 14585 | 100nF 10% 50V |
| 2418 | 2222 780 15656 | 16V 330nF PM10 R |
| 2419 | 4822 124 40433 | 47µF 20% 25V |
| 2450 | 5322 122 32654 | 22nF 10% 63V |
| 2452 | 4822 126 14076 | 220nF 25V. P8020 |
| 2453 | 4822 124 40433 | 47µF 20% 25V |
| 2455 | 5322 122 32531 | 100pF 5% 50V |
| 2456 | 4822 124 22339 | 100UE 16V |
| 2457 | 5322 126 10511 | 1nF 5% 50V |
| 2458 | 5322 122 32654 | 22nF 10% 63V |
| 2459 | 5322 122 32531 | 100pF 5% 50V |
| 2460 | 5322 122 32654 | 22nF 10% 63V |

| | | |
|---|---|---|
| 2461 | 5322 122 32531 | 100pF 5% 50V |
| 2462 | 4822 124 22339 | 100UE 16V |
| 2463 | 5322 126 10511 | 1nF 5% 50V |
| 2464 | 5322 122 32531 | 100pF 5% 50V |
| 2469 | 5322 122 32654 | 22nF 10% 63V |
| 2470 | 5322 122 32654 | 22nF 10% 63V |
| 2471 | 4822 126 14585 | 100nF 10% 50V |
| 2472 | 4822 124 40433 | 47µF 20% 25V |
| 2476 | 4822 124 22339 | 100UE 16V |
| 2479 | 5322 122 32654 | 22nF 10% 63V |
| 2483 | 4822 124 22339 | 100UE 16V |
| 2488 | 4822 126 14585 | 100nF 10% 50V |
| 2489 | 4822 126 14585 | 100nF 10% 50V |
| 2491 | 4822 124 41584 | 100µF 20% 10V |
| 2493 | 4822 126 13692 | 47pF 1% 63V |
| 2495 | 4822 124 40248 | 10µF 20% 63V |

| | | |
|---|---|---|
| 3300 | 4822 117 10353 | 150Ω 1% 0.1W |
| 3301 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3302 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3303 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3304 | 4822 117 11507 | 6k8 1% 0.1W |
| 3305 | 4822 117 11454 | 820Ω 1% 0.1W |
| 3306 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3307 | 4822 051 20472 | 4k7 5% 0.1W |
| 3308 | 4822 117 10361 | 680Ω 1% 0.1W |
| 3309 | 4822 117 10353 | 150Ω 1% 0.1W |
| 3310 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3312 | 4822 117 11503 | 220Ω 1% 0.1W |
| 3313 | 4822 051 20391 | 390Ω 5% 0.1W |
| 3314 | 4822 051 10102 | 1k 2% 0.25W |
| 3315 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3316 | 4822 117 10834 | 47k 1% 0.1W |
| 3318 | 4822 117 10834 | 47k 1% 0.1W |
| 3319 | 4822 051 10102 | 1k 2% 0.25W |
| 3320 | 4822 117 10834 | 47k 1% 0.1W |
| 3321 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3322 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3323 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3325 | 4822 117 10834 | 47k 1% 0.1W |
| 3327 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3329 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3330 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3331 | 4822 117 11145 | 4k7 1% 0.1W |
| 3332 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3333 | 4822 117 10353 | 150Ω 1% 0.1W |
| 3334 | 4822 117 10357 | 4k3 1% 0.2W |
| 3335 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3336 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3338 | 4822 117 10833 | 10k 1% 0.1W |
| 3339 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3340 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3341 | 4822 117 10833 | 10k 1% 0.1W |
| 3342 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3343 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3345 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3347 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3348 | 4822 051 10102 | 1k 2% 0.25W |
| 3349 | 4822 117 10834 | 47k 1% 0.1W |
| 3350 | 4822 117 10833 | 10k 1% 0.1W |
| 3351 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3352 | 4822 051 20562 | 5k6 5% 0.1W 0805 |
| 3353 | 4822 051 10102 | 1k 2% 0.25W |
| 3354 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3355 | 4822 051 20339 | 33Ω 5% 0.1W |
| 3356 | 4822 051 20472 | 4k7 5% 0.1W |
| 3357 | 4822 051 20472 | 4k7 5% 0.1W |
| 3359 | 4822 117 10834 | 47k 1% 0.1W |
| 3360 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3362 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3363 | 4822 051 10102 | 1k 2% 0.25W |
| 3364 | 2322 734 65609 | RST SM 0805 RC12H 56Ω PM1 R |
| 3365 | 4822 051 20561 | 560Ω 5% 0.1W |
| 3366 | 4822 117 10834 | 47k 1% 0.1W |
| 3367 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3368 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3378 | 4822 051 10102 | 1k 2% 0.25W |
| 3394 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3395 | 4822 051 20472 | 4k7 5% 0.1W |
| 3397 | 4822 117 10834 | 47k 1% 0.1W |
| 3398 | 4822 051 20472 | 4k7 5% 0.1W |
| 3399 | 4822 051 20562 | 5k6 5% 0.1W 0805 |
| 3400 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3401 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3402 | 4822 051 20472 | 4k7 5% 0.1W |
| 3403 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3404 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3405 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3406 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3407 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3408 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3409 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3410 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3411 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3413 | 4822 117 10834 | 47k 1% 0.1W |
| 3414 | 4822 051 20472 | 4k7 5% 0.1W |
| 3415 | 4822 051 20223 | 22k 5% 0.1W |
| 3416 | 4822 051 20339 | 33Ω 5% 0.1W |
| 3417 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3418 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3419 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3420 | 4822 117 11149 | 82k 1% 0.1W |
| 3421 | 4822 117 11504 | 270Ω 1% 0.1W |
| 3422 | 4822 051 20472 | 4k7 5% 0.1W |
| 3423 | 2322 734 65609 | RST SM 0805 RC12H 56Ω PM1 R |
| 3424 | 4822 051 20223 | 22k 5% 0.1W |
| 3425 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3427 | 4822 051 20472 | 4k7 5% 0.1W |
| 3429 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3431 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3432 | 4822 117 11927 | 75Ω 1% 0.1W |
| 3433 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3434 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3435 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3436 | 4822 117 10353 | 150Ω 1% 0.1W |
| 3437 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3438 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3439 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3440 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3441 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3442 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3444 | 4822 117 10833 | 10k 1% 0.1W |
| 3445 | 4822 117 10833 | 10k 1% 0.1W |
| 3446 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3447 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3448 | 4822 117 10833 | 10k 1% 0.1W |
| 3451 | 4822 117 10833 | 10k 1% 0.1W |
| 3452 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3453 | 4822 117 10833 | 10k 1% 0.1W |
| 3454 | 4822 117 10833 | 10k 1% 0.1W |
| 3455 | 4822 117 10833 | 10k 1% 0.1W |
| 3456 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3457 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3458 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3459 | 4822 117 10833 | 10k 1% 0.1W |
| 3460 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3461 | 4822 117 10833 | 10k 1% 0.1W |
| 3462 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3463 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3464 | 4822 117 10833 | 10k 1% 0.1W |
| 3472 | 4822 117 11152 | 4Ω7 5% |
| 3473 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3476 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3477 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3481 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3491 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3492 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3494 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3505 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3507 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3508 | 4822 117 12521 | 68Ω 1% 0.1W |
| 3513 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3514 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3515 | 4822 117 10837 | 100k 1% 0.1W |
| 3516 | 4822 117 11152 | 4Ω7 5% |
| 3517 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3518 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3519 | 4822 051 20562 | 5k6 5% 0.1W 0805 |
| 3520 | 4822 051 20472 | 4k7 5% 0.1W |
| 3521 | 4822 051 10102 | 1k 2% 0.25W |
| 3522 | 4822 051 10102 | 1k 2% 0.25W |
| 3524 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3600 | 4822 051 20472 | 4k7 5% 0.1W |
| 3601 | 4822 051 20472 | 4k7 5% 0.1W |
| 3602 | 4822 051 20472 | 4k7 5% 0.1W |
| 3603 | 4822 117 10837 | 100k 1% 0.1W |
| 3604 | 4822 117 11449 | 2k2 5% 0.1W 0805 |
| 3605 | 4822 051 20472 | 4k7 5% 0.1W |
| 3606 | 4822 051 20561 | 560Ω 5% 0.1W |
| 3607 | 4822 051 20562 | 5k6 5% 0.1W 0805 |
| 3608 | 4822 117 10837 | 100k 1% 0.1W |
| 3609 | 4822 051 20822 | 8k2 5% 0.1W |
| 3610 | 4822 051 20472 | 4k7 5% 0.1W |
| 3611 | 4822 051 20472 | 4k7 5% 0.1W |
| 3612 | 4822 117 10833 | 10k 1% 0.1W |
| 3613 | 4822 117 12955 | 2k7 1% 0.1W 0805 |
| 3614 | 4822 117 10833 | 10k 1% 0.1W |
| 3615 | 4822 117 11152 | 4Ω7 5% |
| 3616 | 4822 051 20472 | 4k7 5% 0.1W |
| 3617 | 4822 117 10833 | 10k 1% 0.1W |
| 3618 | 4822 117 10361 | 680Ω 1% 0.1W |
| 3619 | 4822 117 10833 | 10k 1% 0.1W |
| 3620 | 4822 051 10008 | 0Ω 5% 0.25W |
| 3621 | 4822 051 20472 | 4k7 5% 0.1W |
| 3622 | 4822 117 10833 | 10k 1% 0.1W |
| 3623 | 4822 117 11139 | 1k5 1% 0.1W |
| 3624 | 4822 117 10833 | 10k 1% 0.1W |
| 3625 | 4822 051 10102 | 1k 2% 0.25W |
| 3628 | 4822 117 11139 | 1k5 1% 0.1W |
| 3999 | 4822 117 12842 | |
| 4xxx | 4822 051 10008 | 0Ω 5% 0.25W (1206) |
| 4xxx | 4822 051 20008 | 0Ω 5% 0.25W (0805) |

| | | |
|---|---|---|
| 5400 | 4822 157 70601 | 100µH (920927085A) |

| | | |
|---|---|---|
| 6300 | 4822 130 10648 | BZX284-C5V6 |
| 6301 | 4822 130 83757 | BAS216 |
| 6302 | 4822 130 83757 | BAS216 |
| 6303 | 4822 130 83757 | BAS216 |
| 6306 | 4822 130 11528 | 1PS76SB10 |
| 6307 | 4822 130 11528 | 1PS76SB10 |
| 6308 | 4822 130 11528 | 1PS76SB10 |
| 6309 | 4822 130 11383 | BZX284-C5V1 |
| 6400 | 9322 155 28667 | OPT FIB CON GP1FA550TZ (SRPJ)L |

| | | |
|---|---|---|
| 7300 | 4822 130 60373 | BC856B |
| 7301 | 5322 130 60159 | BC846B |
| 7302 | 5322 130 60159 | BC846B |
| 7303 | 5322 130 60159 | BC846B |
| 7304 | 9322 134 86668 | LF80C |
| 7305 | 9322 135 58671 | IC SM STV6410AD (ST00) Y |
| 7306 | 5322 130 60159 | BC846B |
| 7307 | 5322 130 60159 | BC846B |
| 7308 | 5322 130 60159 | BC846B |
| 7309 | 5322 130 60159 | BC846B |
| 7310 | 5322 130 60159 | BC846B |
| 7311 | 5322 130 60159 | BC846B |
| 7312 | 4822 130 60373 | BC856B |
| 7313 | 5322 130 60159 | BC846B |
| 7314 | 4822 130 42804 | BC817-25 |
| 7315 | 4822 130 42804 | BC817-25 |
| 7316 | 4822 209 16256 | TDA4780/V4 |
| 7320 | 5322 130 60159 | BC846B |
| 7321 | 4822 130 42804 | BC817-25 |
| 7322 | 5322 130 60159 | BC846B |
| 7324 | 4822 130 42804 | BC817-25 |
| 7325 | 5322 130 60159 | BC846B |
| 7326 | 4822 130 60373 | BC856B |
| 7327 | 5322 130 60159 | BC846B |
| 7328 | 5322 130 60159 | BC846B |
| 7329 | 5322 130 60159 | BC846B |
| 7330 | 5322 130 60159 | BC846B |
| 7331 | 4822 130 40981 | BC337-25 |
| 7332 | 4822 130 60373 | BC856B |
| 7333 | 4822 130 41246 | BC327-25 |
| 7334 | 5322 130 60159 | BC846B |
| 7335 | 5322 130 60159 | BC846B |
| 7336 | 4822 130 42804 | BC817-25 |
| 7337 | 4822 130 42804 | BC817-25 |
| 7400 | 4822 209 17398 | LD1117DT33 |
| 7401 | 4822 209 17423 | UAD1328T |
| 7402 | 4822 130 42804 | BC817-25 |
| 7403 | 4822 209 32071 | MC33079D |
| 7404 | 4822 130 42804 | BC817-25 |
| 7405 | 4822 130 42804 | BC817-25 |
| 7406 | 4822 130 42804 | BC817-25 |
| 7407 | 4822 130 42804 | BC817-25 |
| 7414 | 4822 209 30095 | LM833D |
| 7415 | 4822 130 42804 | BC817-25 |
| 7416 | 4822 130 42804 | BC817-25 |
| 7417 | 4822 130 60373 | BC856B |
| 7419 | 4822 130 42804 | BC817-25 |
| 7420 | 4822 130 42804 | BC817-25 |
| 7422 | 4822 130 44568 | BC557B |
| 7423 | 5322 130 60159 | BC846B |

## Front PCB

### Various

| | | |
|---|---|---|
| 0002 | 3139 244 00440 | FTD HOLDER DVD711 |
| 1100 | 4822 276 13775 | SWITCH |
| 1101 | 4822 276 13775 | SWITCH |
| 1102 | 4822 276 13775 | SWITCH |
| 1106 | 4822 276 13775 | SWITCH |

| | | |
|---|---|---|
| 1107 | 4822 276 13775 | SWITCH |
| 1108 | 4822 276 13775 | SWITCH |
| 1109 | 4822 276 13775 | SWITCH |
| 1110 | 2422 540 98423 | RES CER 8MHz CSTS*MHz 03 |
| 1111 | 4822 276 13775 | SWITCH |
| 1112 | 8239 210 52390 | BEEPER PKM13EPY-4002 |
| 1113 | 2722 171 07172 | VFD 14-MT-27GNK 135*29 (FTB0)B |
| 1115 | 4822 267 10565 | 4P |
| 1117 | 4822 267 10565 | 4P |
| 1118 | 4822 267 10637 | B5B-PH-K (5P) |
| 1205 | 4822 267 10567 | 4P |

| | | |
|---|---|---|
| 2100 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2101 | 4822 122 33575 | 220pF 5% 63V CASE |
| 2102 | 5322 122 32531 | 100pF 5% 50V |
| 2103 | 5322 122 32531 | 100pF 5% 50V |
| 2105 | 4822 126 12105 | 50V 33nF PM5 |
| 2106 | 4822 124 40248 | 10µF 20% 63V |
| 2107 | 4822 126 12105 | 50V 33nF PM5 |
| 2108 | 4822 126 12105 | 50V 33nF PM5 |
| 2109 | 4822 126 12105 | 50V 33nF PM5 |
| 2110 | 4822 126 12105 | 50V 33nF PM5 |
| 2111 | 4822 126 12105 | 50V 33nF PM5 |
| 2114 | 5322 122 32658 | 22pF 5% 50V |
| 2115 | 5322 122 32658 | 22pF 5% 50V |
| 2116 | 4822 126 12105 | 50V 33nF PM5 |
| 2117 | 4822 124 40248 | 10µF 20% 63V |
| 2122 | 4822 126 12105 | 50V 33nF PM5 |
| 2123 | 4822 124 11947 | 10µF 20% 16V |
| 2124 | 3198 028 42290 | EL 5MM 35V 22µF PM20 COL A |
| 2125 | 5322 122 32658 | 22pF 5% 50V |
| 2126 | 4822 124 40248 | 10µF 20% 63V |
| 2128 | 5322 122 31647 | 1nF 10% 63V |
| 2129 | 3198 028 42290 | EL 5MM 35V 22µF PM20 COL A |
| 2130 | 3198 028 42290 | EL 5MM 35V 22µF PM20 COL A |
| 2201 | 4822 126 12105 | 50V 33nF PM5 |
| 2211 | 5322 122 32531 | 100pF 5% 50V |

| | | |
|---|---|---|
| 3100 | 4822 051 20223 | 22k 5% 0.1W |
| 3101 | 4822 051 20273 | 27k 5% 0.1W |
| 3102 | 4822 117 10834 | 47k 1% 0.1W |
| 3103 | 4822 117 11149 | 82k 1% 0.1W |
| 3104 | 4822 117 10837 | 100k 1% 0.1W |
| 3105 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3106 | 4822 117 11503 | 220Ω 1% 0.1W |
| 3107 | 4822 051 20008 | 0Ω jumper . (0805) |
| 3108 | 4822 117 11149 | 82k 1% 0.1W |
| 3109 | 4822 051 20472 | 4k7 5% 0.1W |
| 3110 | 4822 051 20472 | 4k7 5% 0.1W |
| 3111 | 4822 051 20472 | 4k7 5% 0.1W |
| 3112 | 4822 051 20472 | 4k7 5% 0.1W |
| 3113 | 4822 051 20472 | 4k7 5% 0.1W |
| 3114 | 4822 051 20109 | 10Ω 5% 0.1W |
| 3115 | 4822 051 20472 | 4k7 5% 0.1W |
| 3116 | 4822 117 11149 | 82k 1% 0.1W |
| 3117 | 4822 117 11152 | 4Ω7 5% |
| 3118 | 4822 117 10833 | 10k 1% 0.1W |
| 3119 | 4822 117 10833 | 10k 1% 0.1W |
| 3120 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3121 | 4822 051 20472 | 4k7 5% 0.1W |
| 3122 | 4822 051 20109 | 10Ω 5% 0.1W |
| 3123 | 4822 117 10833 | 10k 1% 0.1W |
| 3125 | 4822 051 20109 | 10Ω 5% 0.1W |
| 3130 | 4822 051 20109 | 10Ω 5% 0.1W |
| 3131 | 4822 117 11152 | 4Ω7 5% |
| 3132 | 4822 117 13577 | 330Ω 1% RC12H 0805 1.25W |
| 3133 | 4822 051 20109 | 10Ω 5% 0.1W |
| 3134 | 4822 117 13577 | 330Ω 1% RC12H 0805 1.25W |
| 3135 | 4822 117 11503 | 220Ω 1% 0.1W |
| 3136 | 4822 051 10102 | 1k 2% 0.25W |
| 3137 | 4822 117 10833 | 10k 1% 0.1W |
| 3138 | 4822 051 20471 | 470Ω 5% 0.1W |
| 3139 | 4822 051 20472 | 4k7 5% 0.1W |
| 3140 | 4822 117 10833 | 10k 1% 0.1W |
| 3142 | 4822 117 13577 | 330Ω 1% RC12H 0805 1.25W |
| 3143 | 4822 117 10833 | 10k 1% 0.1W |
| 3144 | 4822 117 10837 | 100k 1% 0.1W |
| 3145 | 4822 117 10833 | 10k 1% 0.1W |
| 3150 | 4822 051 20472 | 4k7 5% 0.1W |
| 3151 | 4822 051 20101 | 100Ω 5% 0.1W |

| | | |
|---|---|---|
| 6100 | 4822 130 83757 | BAS216 |
| 6101 | 4822 130 11666 | BZX284-C8V2 |
| 6102 | 4822 130 10794 | BZX284-C10 |
| 6104 | 4822 130 83757 | BAS216 |
| 6105 | 4822 130 83757 | BAS216 |
| 6200 | 4822 130 82978 | LTL-16KPE-P |

| | | |
|---|---|---|
| 7100 | 5322 130 60159 | BC846B |
| 7101 | 5322 130 60159 | BC846B |
| 7102 | 5322 130 60159 | BC846B |
| 7103 | 5322 130 60159 | BC846B |
| 7104 | 3104 123 94532 | TMP87CH74F-1E29-V2.18-DVDSLAVE |
| 7105 | 4822 130 40855 | BC337 |
| 7106 | 4822 130 40854 | BC327 |
| 7107 | 5322 130 60159 | BC846B |
| 7108 | 5322 130 60159 | BC846B |
| 7109 | 4822 130 60373 | BC856B |
| 7110 | 4822 212 30842 | TSOP1736SB1 |
| 7112 | 4822 209 31257 | MC79L24ACP |

## Headphone PCB

### Various

| | | |
|---|---|---|
| 1003 | 4822 267 31453 | |
| 1201 | 2422 025 12491 | CON BM H 07P M 2.50 EH B |

| | | |
|---|---|---|
| 2200 | 4822 122 33926 | 12pF 50V |
| 2201 | 4822 126 14585 | 100nF 10% 50V |
| 2202 | 4822 126 14585 | 100nF 10% 50V |
| 2203 | 4822 126 14585 | 100nF 10% 50V |
| 2204 | 5322 122 31647 | 1nF 10% 63V |
| 2205 | 4822 122 33926 | 12pF 50V |
| 2206 | 4822 126 14585 | 100nF 10% 50V |
| 2207 | 5322 122 31647 | 1nF 10% 63V |
| 2208 | 4822 124 40207 | 100µF 20% 25V |
| 2209 | 4822 124 40207 | 100µF 20% 25V |
| 2210 | 5322 122 31647 | 1nF 10% 63V |

| | | |
|---|---|---|
| 3201 | 4822 101 21199 | 10kX2 20% 0.025W |
| 3206 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3207 | 4822 051 20229 | 22Ω 5% 0.1W |
| 3209 | 4822 051 20101 | 100Ω 5% 0.1W |
| 3210 | 4822 051 20229 | 22Ω 5% 0.1W |
| 3211 | 4822 051 20472 | 4k7 5% 0.1W |
| 3212 | 4822 117 11507 | 6k8 1% 0.1W |
| 3214 | 4822 051 20472 | 4k7 5% 0.1W |
| 3215 | 4822 117 11507 | 6k8 1% 0.1W |

| | | |
|---|---|---|
| 7802 | 4822 209 62059 | TCA0372DP1 |

## VAL6011

### Various

| | | |
|---|---|---|
| 0001 | 3139 197 60090 | GENEVA LP LOADER ASSY |
| 0002 | 9305 022 60101 | VAM6001/01 |
| 0003 | 3139 194 00710 | SUSPENSION |
| 0004 | 3139 194 00710 | SUSPENSION |
| 0005 | 3139 194 00620 | SUSPENSION |
| 0006 | 3139 194 00620 | SUSPENSION |
| 0007 | 3139 197 60060 | CLAMPER ASSEMBLY |

## Loader

### Various

| | | |
|---|---|---|
| 0004 | 4822 358 10266 | |
| 0009 | 3139 198 80010 | |
| 0010 | 4822 532 13097 | TULE |
| 0011 | 3139 194 00270 | |
| 0012 | 3139 197 50060 | |

## Monoboard

### Various

| | | |
|---|---|---|
| 1104 | 2422 025 15963 | CON BM H 24P F 0.50 FFC SMD R |
| 1106 | 2422 025 16158 | CON BM H 8P F 1.00 FFC 0.3 R |
| 1205 | 2422 540 98428 | RES CER SM 8M467 CSTCC8.46MHz R |
| 1300 | 2422 540 98426 | RES CER SM 6MHz CSTCC6.00MHz R |
| 1301 | 4822 267 51454 | CONN. 11P FEMALE |
| 1603 | 2422 025 16389 | CON BM V 22P F 1.00 FFC 0.3 R |
| 1604 | 2422 025 16388 | CON BM V 16P F 1.00 FFC 0.3 R |

| | | |
|---|---|---|
| 2100 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2101 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2103 | 4822 124 80151 | 47µF 16V |
| 2104 | 4822 126 13193 | 4.7nF 10% 63V |
| 2105 | 4822 122 33761 | 22pF 5% 50V |
| 2107 | 4822 126 13956 | 68pF 5% 63V CASE 0603 |
| 2108 | 4822 126 14315 | 390pF 5% 50V 0603 |
| 2109 | 2020 552 95697 | |
| 2110 | 2222 861 15222 | 50V 2N2 PM5 |
| 2111 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2112 | 5322 126 11578 | 1nF 10% 50V 0603 |
| 2113 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2114 | 4822 122 31765 | 100pF 2% 63V |
| 2115 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2116 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2117 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2120 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2121 | 4822 126 13879 | 220nF 20% 16V |
| 2123 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2124 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2125 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2126 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2127 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2128 | 4822 126 14508 | 180pF 5% 50V 0603 |
| 2129 | 4822 126 14508 | 180pF 5% 50V 0603 |
| 2130 | 4822 122 33761 | 22pF 5% 50V |
| 2131 | 4822 126 14494 | 22nF 10% 25V 0603 |
| 2136 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2137 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2138 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2139 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2140 | 4822 126 14241 | 0603 50V 330P COL R |
| 2141 | 4822 122 33761 | 22pF 5% 50V |
| 2142 | 5322 126 11583 | 10nF 10% 50V 0603 |
| 2143 | 4822 126 13883 | 220pF 5% 50V |
| 2144 | 4822 126 13883 | 220pF 5% 50V |
| 2145 | 4822 126 13883 | 220pF 5% 50V |
| 2203 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2204 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2205 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2206 | 4822 126 14549 | 33nF 16V O6O3 |
| 2207 | 5322 126 11578 | 1nF 10% 50V 0603 |
| 2208 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2209 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2210 | 5322 126 11578 | 1nF 10% 50V 0603 |
| 2212 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2213 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2215 | 4822 124 23237 | 22µF 6.3V |
| 2216 | 5322 126 11578 | 1nF 10% 50V 0603 |
| 2226 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2227 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2228 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2300 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2301 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2302 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2303 | 4822 124 80349 | 47µF 20% 6.3V |
| 2306 | 4822 124 23002 | 10µF 16V |
| 2309 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2310 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2314 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2315 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2318 | 5322 122 33861 | 120pF 10% 50V |
| 2319 | 4822 126 11669 | 27pF |
| 2401 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2402 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2403 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2404 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2405 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2406 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2407 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2408 | 4822 126 14305 | 100nF 10% 16V 0603 |

| | | |
|---|---|---|
| 2409 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2410 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2411 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2412 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2413 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2418 | 4822 124 12095 | 100µF 20% 16V |
| 2419 | 4822 124 80349 | 47µF 20% 6.3V |
| 2420 | 4822 124 80349 | 47µF 20% 6.3V |
| 2500 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2502 | 3198 030 74780 | EL SM 35V 4U7 PM20 COL R |
| 2503 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2504 | 4822 122 31765 | 100pF 2% 63V |
| 2505 | 4822 126 14494 | 22nF 10% 25V 0603 |
| 2506 | 4822 124 23002 | 10µF 16V |
| 2507 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2508 | 5322 126 11579 | 3.3nF 10% 63V |
| 2509 | 4822 126 14241 | 0603 50V 330P COL R |
| 2510 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2511 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2512 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2513 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2514 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2515 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2516 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2517 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2518 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2519 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2520 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2521 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2522 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2523 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2524 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2525 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2526 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2527 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2528 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2529 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2530 | 3198 030 74780 | EL SM 35V 4U7 PM20 COL R |
| 2531 | 3198 030 74780 | EL SM 35V 4U7 PM20 COL R |
| 2532 | 4822 122 33777 | 47pF 5% 63V |
| 2533 | 4822 122 33777 | 47pF 5% 63V |
| 2534 | 5322 126 11578 | 1nF 10% 50V 0603 |
| 2535 | 5322 126 11578 | 1nF 10% 50V 0603 |
| 2600 | 4822 126 14494 | 22nF 10% 25V 0603 |
| 2601 | 4822 126 14247 | 0603 50V 1N5 COL R |
| 2602 | 4822 126 14247 | 0603 50V 1N5 COL R |
| 2603 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2604 | 4822 124 12095 | 100µF 20% 16V |
| 2605 | 4822 126 14494 | 22nF 10% 25V 0603 |
| 2606 | 4822 124 12095 | 100µF 20% 16V |
| 2607 | 4822 124 12095 | 100µF 20% 16V |
| 2608 | 4822 124 23002 | 10µF 16V |
| 2609 | 4822 124 80151 | 47µF 16V |
| 2610 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2611 | 4822 124 12095 | 100µF 20% 16V |
| 2614 | 4822 122 33777 | 47pF 5% 63V |
| 2615 | 4822 122 33777 | 47pF 5% 63V |
| 2616 | 4822 122 33777 | 47pF 5% 63V |
| 2617 | 4822 122 33777 | 47pF 5% 63V |
| 2618 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2619 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2620 | 4822 122 33777 | 47pF 5% 63V |
| 2621 | 4822 122 33777 | 47pF 5% 63V |
| 2622 | 4822 122 33777 | 47pF 5% 63V |
| 2623 | 4822 122 33777 | 47pF 5% 63V |
| 2624 | 4822 122 33777 | 47pF 5% 63V |
| 2625 | 4822 122 33777 | 47pF 5% 63V |
| 2626 | 4822 122 33777 | 47pF 5% 63V |
| 2627 | 4822 122 33777 | 47pF 5% 63V |
| 2632 | 4822 124 12095 | 100µF 20% 16V |
| 2633 | 4822 124 12095 | 100µF 20% 16V |
| 2634 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2635 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2636 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2637 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2638 | 4822 126 14305 | 100nF 10% 16V 0603 |
| 2639 | 4822 126 14305 | 100nF 10% 16V 0603 |

| | | |
|---|---|---|
| 3100 | 4822 117 11152 | 4Ω7 5% |
| 3102 | 5322 117 13034 | 1k5 1% 0.063W 0603 RC22H |
| 3103 | 5322 117 13034 | 1k5 1% 0.063W 0603 RC22H |
| 3104 | 5322 117 13062 | 390Ω 1% 0.063W 0603 RC22H |
| 3105 | 4822 051 30103 | 10k 5% 0.062W |
| 3106 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3107 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3108 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3110 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3111 | 5322 117 13058 | 150Ω 1% 0.063W 0603 RC22H |
| 3112 | 5322 117 13021 | 47Ω 1% 0.063W 0603 RC22H |
| 3114 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3115 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3116 | 5322 117 13042 | 3k9 1% 0.063W 0603 RC22H |
| 3117 | 4822 051 30181 | 180Ω 5% 0.062W |
| 3118 | 4822 051 30681 | 680Ω 5% 0.062W |
| 3119 | 5322 117 13062 | 390Ω 1% 0.063W 0603 RC22H |
| 3120 | 4822 051 30102 | 1k 5% 0.062W |
| 3121 | 4822 051 30273 | 27k 5% 0.062W |
| 3122 | 4822 051 30471 | 470Ω 5% 0.062W |
| 3123 | 4822 051 30103 | 10k 5% 0.062W |
| 3124 | 4822 051 30471 | 470Ω 5% 0.062W |
| 3125 | 4822 051 30103 | 10k 5% 0.062W |
| 3126 | 4822 051 30103 | 10k 5% 0.062W |
| 3127 | 4822 051 30223 | 22k 5% 0.062W |
| 3128 | 2322 704 69109 | |
| 3129 | 4822 051 30392 | 3k9 5% 0.063W 0603 |
| 3130 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3131 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3132 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3133 | 4822 051 20228 | 2Ω2 5% 0.1W |
| 3134 | 5322 117 13047 | 330Ω 1% 0.063W 0603 RC22H |
| 3135 | 4822 117 13613 | 2Ω2 5% 0603 |
| 3137 | 4822 117 13613 | 2Ω2 5% 0603 |
| 3138 | 5322 117 13053 | 6k8 1% 0.063W 0603 RC22H |
| 3139 | 4822 117 12917 | 1Ω 5% 0.062W CASE0603 |
| 3140 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3141 | 4822 117 11152 | 4Ω7 5% |
| 3142 | 5322 117 13028 | 12k 1% 0.063W 0603 RC22H |
| 3143 | 5322 117 13043 | 220Ω 1% 0.063W 0603 RC22H |
| 3144 | 2322 704 69109 | |
| 3146 | 4822 051 30103 | 10k 5% 0.062W |
| 3147 | 4822 051 30103 | 10k 5% 0.062W |
| 3148 | 5322 117 13022 | 22k 1% 0.063W 0603 RC22H |
| 3153 | 4822 117 12139 | 22Ω 5% 0.062W |
| 3155 | 4822 051 30103 | 10k 5% 0.062W |
| 3157 | 4822 051 30103 | 10k 5% 0.062W |
| 3158 | 5322 117 13017 | 100Ω 1% 0.063W 0603 RC22H |
| 3160 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3161 | 4822 117 13613 | 2Ω2 5% 0603 |
| 3162 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3163 | 4822 051 30273 | 27k 5% 0.062W |
| 3164 | 4822 117 13613 | 2Ω2 5% 0603 |
| 3165 | 5322 117 13063 | 120Ω 1% 0.063W 0603 RC22H |
| 3166 | 4822 051 30393 | 39k 5% 0.062W |
| 3167 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3168 | 5322 117 13047 | 330Ω 1% 0.063W 0603 RC22H |
| 3169 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3170 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3171 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3172 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3173 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3174 | 4822 117 11152 | 4Ω7 5% |
| 3175 | 4822 117 13613 | 2Ω2 5% 0603 |
| 3176 | 4822 051 30153 | 15k 5% 0.062W |
| 3178 | 4822 117 11151 | 1Ω 5% |
| 3179 | 4822 051 30221 | 220Ω 5% 0.062W |
| 3180 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3181 | 4822 051 30561 | 560Ω 5% 0.062W |
| 3182 | 5322 117 13018 | 1k0 1% 0.063W 0603 RC22H |
| 3183 | 5322 117 13017 | 100Ω 1% 0.063W 0603 RC22H |
| 3184 | 2322 704 61204 | |
| 3185 | 4822 117 11151 | 1Ω 5% |
| 3187 | 4822 051 30273 | 27k 5% 0.062W |
| 3189 | 4822 051 30008 | 0Ω jumper |
| 3190 | 4822 051 30008 | 0Ω jumper |
| 3191 | 4822 051 30008 | 0Ω jumper |
| 3192 | 4822 051 30008 | 0Ω jumper |
| 3193 | 4822 051 30008 | 0Ω jumper |
| 3194 | 4822 051 30008 | 0Ω jumper |
| 3195 | 4822 051 30008 | 0Ω jumper |
| 3197 | 4822 051 30008 | 0Ω jumper |
| 3198 | 5322 117 13049 | 470Ω 1% 0.063W 0603 RC22H |
| 3199 | 5322 117 13042 | 3k9 1% 0.063W 0603 RC22H |
| 3200 | 4822 051 30103 | 10k 5% 0.062W |
| 3201 | 4822 117 11151 | 1Ω 5% |
| 3202 | 4822 117 11151 | 1Ω 5% |
| 3203 | 4822 051 30105 | 1M 5% 0.062W |
| 3204 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3205 | 4822 051 30103 | 10k 5% 0.062W |
| 3206 | 4822 051 30103 | 10k 5% 0.062W |
| 3208 | 4822 051 30272 | 2k7 5% 0.062W |
| 3209 | 4822 051 30472 | 4k7 5% 0.062W |
| 3210 | 4822 051 30392 | 3k9 5% 0.063W 0603 |
| 3211 | 4822 051 30472 | 4k7 5% 0.062W |
| 3212 | 4822 117 11152 | 4Ω7 5% |
| 3213 | 4822 117 11152 | 4Ω7 5% |
| 3214 | 4822 051 30392 | 3k9 5% 0.063W 0603 |
| 3215 | 4822 051 30103 | 10k 5% 0.062W |
| 3219 | 4822 051 30103 | 10k 5% 0.062W |
| 3220 | 4822 051 30103 | 10k 5% 0.062W |
| 3221 | 4822 051 30103 | 10k 5% 0.062W |
| 3224 | 4822 051 30151 | 150Ω 5% 0.062W |
| 3225 | 2322 704 62004 | |
| 3226 | 4822 051 30103 | 10k 5% 0.062W |
| 3227 | 4822 051 30472 | 4k7 5% 0.062W |
| 3229 | 4822 051 30123 | 12k 5% 0.062W |
| 3230 | 4822 051 30103 | 10k 5% 0.062W |
| 3231 | 4822 051 30103 | 10k 5% 0.062W |
| 3232 | 4822 117 13613 | 2Ω2 5% 0603 |
| 3234 | 4822 117 12902 | 8k2 1% 0.063W 0603 |
| 3235 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3236 | 4822 051 30472 | 4k7 5% 0.062W |
| 3237 | 4822 051 30103 | 10k 5% 0.062W |
| 3238 | 4822 051 30103 | 10k 5% 0.062W |
| 3239 | 4822 051 30008 | 0Ω jumper |
| 3239 | 4822 051 30103 | 10k 5% 0.062W |
| 3240 | 4822 051 30103 | 10k 5% 0.062W |
| 3242 | 4822 051 30008 | 0Ω jumper |
| 3243 | 4822 051 30008 | 0Ω jumper |
| 3246 | 4822 051 30008 | 0Ω jumper |
| 3247 | 4822 051 30008 | 0Ω jumper |
| 3249 | 4822 051 30008 | 0Ω jumper |
| 3250 | 4822 051 30008 | 0Ω jumper |
| 3251 | 4822 051 30008 | 0Ω jumper |
| 3252 | 4822 051 30008 | 0Ω jumper |
| 3253 | 4822 051 30008 | 0Ω jumper |
| 3254 | 4822 051 30008 | 0Ω jumper |
| 3255 | 4822 051 30008 | 0Ω jumper |
| 3256 | 4822 051 30008 | 0Ω jumper |
| 3257 | 4822 051 30008 | 0Ω jumper |
| 3258 | 4822 051 30008 | 0Ω jumper |
| 3259 | 4822 117 11151 | 1Ω 5% |
| 3260 | 4822 117 11151 | 1Ω 5% |
| 3300 | 4822 117 11152 | 4Ω7 5% |
| 3301 | 4822 051 30105 | 1M 5% 0.062W |
| 3302 | 4822 051 30221 | 220Ω 5% 0.062W |
| 3304 | 4822 051 30272 | 2k7 5% 0.062W |
| 3305 | 4822 051 30272 | 2k7 5% 0.062W |
| 3309 | 4822 051 30103 | 10k 5% 0.062W |
| 3310 | 4822 051 30223 | 22k 5% 0.062W |
| 3311 | 4822 051 30223 | 22k 5% 0.062W |
| 3312 | 4822 051 30472 | 4k7 5% 0.062W |
| 3313 | 4822 051 30472 | 4k7 5% 0.062W |
| 3316 | 4822 051 20108 | 1Ω 5% 0.1W |
| 3317 | 4822 051 20108 | 1Ω 5% 0.1W |
| 3318 | 4822 051 30472 | 4k7 5% 0.062W |
| 3319 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3320 | 4822 051 30472 | 4k7 5% 0.062W |
| 3321 | 4822 051 30682 | 6k8 5% 0.062W |
| 3322 | 5322 117 13026 | 4k7 1% 0.063W 0603 RC22H |
| 3323 | 5322 117 13026 | 4k7 1% 0.063W 0603 RC22H |
| 3324 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3325 | 4822 051 30682 | 6k8 5% 0.062W |
| 3326 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3327 | 4822 051 30682 | 6k8 5% 0.062W |
| 3328 | 4822 051 30223 | 22k 5% 0.062W |
| 3329 | 4822 051 30223 | 22k 5% 0.062W |
| 3330 | 4822 051 30223 | 22k 5% 0.062W |
| 3331 | 4822 051 30332 | 3k3 5% 0.062W |
| 3332 | 4822 051 30332 | 3k3 5% 0.062W |
| 3333 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3334 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3335 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3336 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3337 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3338 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3339 | 4822 051 30008 | 0Ω jumper |
| 3340 | 4822 051 30008 | 0Ω jumper |
| 3403 | 4822 051 30103 | 10k 5% 0.062W |
| 3404 | 4822 051 30103 | 10k 5% 0.062W |
| 3405 | 4822 051 30103 | 10k 5% 0.062W |
| 3412 | 4822 051 30008 | 0Ω jumper |
| 3414 | 4822 051 30008 | 0Ω jumper |
| 3416 | 4822 051 30008 | 0Ω jumper |
| 3500 | 4822 051 30332 | 3k3 5% 0.062W |
| 3501 | 4822 051 30332 | 3k3 5% 0.062W |

| | | |
|---|---|---|
| 3502 | 4822 051 30223 | 22k 5% 0.062W |
| 3503 | 4822 051 30103 | 10k 5% 0.062W |
| 3504 | 4822 051 30103 | 10k 5% 0.062W |
| 3505 | 4822 051 30103 | 10k 5% 0.062W |
| 3506 | 4822 051 30103 | 10k 5% 0.062W |
| 3507 | 4822 051 30472 | 4k7 5% 0.062W |
| 3508 | 4822 051 30689 | 68Ω 5% 0.063W 0603 RC21 RST SM |
| 3509 | 4822 051 30103 | 10k 5% 0.062W |
| 3511 | 4822 051 30332 | 3k3 5% 0.062W |
| 3512 | 4822 051 30332 | 3k3 5% 0.062W |
| 3513 | 4822 051 30103 | 10k 5% 0.062W |
| 3514 | 4822 051 30103 | 10k 5% 0.062W |
| 3515 | 4822 051 30103 | 10k 5% 0.062W |
| 3516 | 4822 051 30103 | 10k 5% 0.062W |
| 3517 | 4822 051 30332 | 3k3 5% 0.062W |
| 3519 | 4822 051 30103 | 10k 5% 0.062W |
| 3520 | 4822 051 30103 | 10k 5% 0.062W |
| 3521 | 4822 051 30103 | 10k 5% 0.062W |
| 3522 | 4822 051 30103 | 10k 5% 0.062W |
| 3523 | 4822 051 30332 | 3k3 5% 0.062W |
| 3524 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3525 | 4822 051 30103 | 10k 5% 0.062W |
| 3526 | 4822 051 30103 | 10k 5% 0.062W |
| 3534 | 4822 051 30103 | 10k 5% 0.062W |
| 3535 | 4822 051 30153 | 15k 5% 0.062W |
| 3536 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3537 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3538 | 4822 051 30681 | 680Ω 5% 0.062W |
| 3541 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3542 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3545 | 4822 051 30221 | 220Ω 5% 0.062W |
| 3546 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3548 | 4822 051 30008 | 0Ω jumper |
| 3549 | 4822 051 30008 | 0Ω jumper |
| 3550 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3551 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3552 | 4822 051 30008 | 0Ω jumper |
| 3554 | 4822 051 30008 | 0Ω jumper |
| 3564 | 4822 051 30008 | 0Ω jumper |
| 3566 | 4822 051 30008 | 0Ω jumper |
| 3570 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3571 | 4822 051 30689 | 68Ω 5% 0.063W 0603 RC21 RST SM |
| 3572 | 4822 051 30689 | 68Ω 5% 0.063W 0603 RC21 RST SM |
| 3605 | 4822 051 30008 | 0Ω jumper |
| 3606 | 4822 117 12925 | 47k 1% 0.063W 0603 |
| 3607 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3608 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3609 | 4822 117 13632 | 100k 1% 0603 0.62W |
| 3610 | 4822 051 30103 | 10k 5% 0.062W |
| 3611 | 4822 051 30103 | 10k 5% 0.062W |
| 3612 | 4822 051 30103 | 10k 5% 0.062W |
| 3613 | 4822 051 30103 | 10k 5% 0.062W |
| 3614 | 4822 051 30103 | 10k 5% 0.062W |
| 3615 | 4822 051 30103 | 10k 5% 0.062W |
| 3616 | 4822 051 30103 | 10k 5% 0.062W |
| 3618 | 4822 051 30223 | 22k 5% 0.062W |
| 3619 | 4822 051 30223 | 22k 5% 0.062W |
| 3620 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3621 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3622 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3623 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3624 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3625 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3626 | 4822 051 30102 | 1k 5% 0.062W |
| 3627 | 4822 051 30471 | 470Ω 5% 0.062W |
| 3628 | 4822 051 30471 | 470Ω 5% 0.062W |
| 3629 | 4822 051 30472 | 4k7 5% 0.062W |
| 3630 | 4822 051 30221 | 220Ω 5% 0.062W |
| 3631 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3632 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3633 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3635 | 4822 051 30682 | 6k8 5% 0.062W |
| 3636 | 4822 051 30682 | 6k8 5% 0.062W |
| 3637 | 4822 051 30332 | 3k3 5% 0.062W |
| 3642 | 4822 051 30103 | 10k 5% 0.062W |
| 3647 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3648 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3651 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3654 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3655 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3656 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3657 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3658 | 4822 051 30102 | 1k 5% 0.062W |
| 3659 | 4822 051 30102 | 1k 5% 0.062W |
| 3660 | 4822 051 30102 | 1k 5% 0.062W |
| 3661 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3662 | 4822 051 30102 | 1k 5% 0.062W |
| 3663 | 4822 051 30102 | 1k 5% 0.062W |
| 3664 | 2322 704 64301 | RST SM 0603 RC22H 430Ω PM1 R |
| 3665 | 4822 117 12139 | 22Ω 5% 0.062W |
| 3667 | 4822 051 30331 | 330Ω 5% 0.062W |
| 3669 | 4822 051 30008 | 0Ω jumper |
| 3670 | 4822 051 30008 | 0Ω jumper |
| 3671 | 4822 051 30223 | 22k 5% 0.062W |
| 3672 | 4822 051 30479 | 47Ω 5% 0.062W |
| 3673 | 4822 051 30101 | 100Ω 5% 0.062W |
| 3677 | 4822 051 30008 | 0Ω jumper |
| 3678 | 4822 051 30008 | 0Ω jumper |
| 3679 | 4822 051 30008 | 0Ω jumper |
| 3681 | 4822 051 30008 | 0Ω jumper |
| 3683 | 4822 051 30008 | 0Ω jumper |
| 3685 | 4822 051 30008 | 0Ω jumper |
| 3686 | 4822 051 30223 | 22k 5% 0.062W |
| 3687 | 4822 051 30223 | 22k 5% 0.062W |
| 3688 | 4822 051 30472 | 4k7 5% 0.062W |
| 3689 | 4822 051 30223 | 22k 5% 0.062W |

| | | |
|---|---|---|
| 5200 | 4822 157 11717 | BLM31P500SPT |
| 5300 | 4822 157 11717 | BLM31P500SPT |
| 5301 | 4822 157 11717 | BLM31P500SPT |
| 5402 | 4822 157 11499 | BLM11P600SPT |
| 5403 | 4822 157 11499 | BLM11P600SPT |
| 5501 | 4822 157 70299 | 2.2µH (NL322522T-2R2J) |
| 5502 | 4822 157 70299 | 2.2µH (NL322522T-2R2J) |
| 5503 | 4822 157 71206 | BLM21A601SPT |
| 5504 | 4822 157 71206 | BLM21A601SPT |
| 5600 | 4822 157 71206 | BLM21A601SPT |
| 5601 | 4822 157 11499 | BLM11P600SPT |
| 5602 | 4822 157 10547 | 15µH 5% |
| 5603 | 4822 157 71206 | BLM21A601SPT |
| 5604 | 4822 157 10547 | 15µH 5% |
| 5605 | 4822 157 10547 | 15µH 5% |
| 5606 | 4822 157 10547 | 15µH 5% |
| 5607 | 4822 157 10547 | 15µH 5% |
| 5608 | 4822 157 10547 | 15µH 5% |
| 5609 | 4822 157 11717 | BLM31P500SPT |
| 5610 | 4822 157 11717 | BLM31P500SPT |

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|---|---|---|
| 6200 | 4822 130 11397 | BAS316 |
| 6301 | 9322 128 69685 | S1D |
| 6302 | 9322 128 69685 | S1D |
| 6303 | 9322 128 69685 | S1D |
| 6600 | 4822 130 11528 | 1PS76SB10 |

| | | |
|---|---|---|
| 7100 | 5322 130 42718 | BFS20 |
| 7101 | 5322 130 42718 | BFS20 |
| 7102 | 9352 637 37518 | |
| 7103 | 4822 209 17229 | BA5938FM |
| 7104 | 4822 209 30095 | LM833D |
| 7105 | 4822 209 32073 | MC34072D |
| 7106 | 5322 130 42718 | BFS20 |
| 7109 | 4822 209 15083 | AN78M09 |
| 7110 | 5322 130 60803 | BST72A |
| 7111 | 5322 130 60159 | BC846B |
| 7112 | 5322 130 60159 | BC846B |
| 7113 | 5322 130 60159 | BC846B |
| 7114 | 5322 130 60159 | BC846B |
| 7115 | 4822 130 60373 | BC856B |
| 7116 | 5322 130 60159 | BC846B |
| 7201 | 9351 869 80118 | |
| 7202 | 3104 123 95660 | |
| 7203 | 4822 130 60373 | BC856B |
| 7207 | 9352 636 60557 | SAA7399HL/M2A |
| 7304 | 4822 209 16877 | BA6856FP |
| 7310 | 4822 209 15899 | CY7C199-15C |
| 7311 | 9352 637 83557 | IC SM SAA7335HL/E/M2 (PHSE) Y |
| 7312 | 4822 130 60373 | BC856B |
| 7315 | 5322 130 60159 | BC846B |
| 7401 | 9322 132 01668 | AM29LV160B |
| 7404 | 9322 144 59668 | IC SM MT48LC1M16A1TG-7S (MRN)R |
| 7405 | 9322 144 59668 | IC SM MT48LC1M16A1TG-7S (MRN)R |
| 7501 | 5322 130 60159 | BC846B |
| 7503 | 9322 144 88671 | STI5505EVB |
| 7503 | 9322 151 16671 | STI5505AVC |
| 7504 | 4822 242 10838 | 27MHZ 120P FX0-31FT |
| 7505 | 8204 056 05580 | IC SM M24C32-WMN6TNKSA |
| 7600 | 5322 209 71568 | PC74HCT14T |
| 7604 | 5322 130 60159 | BC846B |
| 7605 | 4822 209 17398 | LD1117DT33 |
| 7607 | 5322 130 60159 | BC846B |
| 7608 | 4822 130 60373 | BC856B |
| 7609 | 4822 130 60373 | BC856B |
| 7610 | 5322 130 60159 | BC846B |
| 7611 | 9352 456 80115 | |
| 7612 | 5322 130 60159 | BC846B |
| 7613 | 5322 130 60159 | BC846B |
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| 7616 | 4822 209 16062 | MK2742-03S |
| 7617 | 5322 130 60159 | BC846B |
| 7618 | 5322 130 60159 | BC846B |
| 7620 | 4822 130 60373 | BC856B |
| 7621 | 4822 130 42804 | BC817-25 |